Human Immunodeficiency Virus (HIV) & Hepatitis C Virus (HCV) Outbreak Response Plan

January 2018

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Situation Overview

In early 2015, the Indiana Department of Health noticed a cluster of eleven HIV cases in a county that had historically observed less than one new case of HIV each year. The majority of these cases were among persons who inject drugs (PWID) who had shared needles while injecting the prescription opioid Opana[1].

Eventually, the outbreak grew to more than 180 cases, with almost all cases co-infected with HCV. It is estimated the lifelong medical costs attributed to this outbreak will cost the state of Indiana over 80 million dollars[2].

The Centers for Disease Control and Prevention (CDC) recently deemed 41 Tennessee counties, home to about 20% of the state's population, at-risk for the rapid dissemination of HIV and HCV among PWID similar to what happened in Indiana[3].

Purpose

This plan establishes a framework for the Tennessee Department of Health (TDH) to prepare for and respond to an outbreak of HIV and HCV in Tennessee.

The plan and its supporting documentation:

- Describe routine surveillance efforts
- Outline roles and responsibilities for: (1) enhanced surveillance, (2) identification of a cluster of cases, and (3) declaration of an outbreak
- Provide informational resources for clinicians, public health staff, and those receiving testing

A **cluster** is defined as any area of suspicion under investigation prior to determining the occurrence of an **outbreak** of HIV and/or HCV transmission. Clusters are identified through routine surveillance, enhanced surveillance, and/or regional communication.

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[1] http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6416a4.htm
[2] http://www.publichealth.indiana.edu/features/2015_WAD.shtml
[3] Van Handel M, Rose C, Hallisey E, et al. County-Level Vulnerability Assessment for Rapid Dissemination of HIV or HCV Infections Among Persons Who Inject Drugs, United States. *J Acquir Immune Deifc Syndr*. 2016;73(3), 323-331.

HIV in Tennessee

In Tennessee, diagnoses of HIV infection (i.e., HIV cases) are reportable by providers and laboratories[4,5].

In 2016, 714 Tennesseans were newly diagnosed with HIV, and as of December 31, 2016, 17,489 people were known to be living with HIV (data accessed from the Tennessee Enhanced HIV/AIDS Reporting System (eHARS) on June 30, 2017). Additionally, there were 304 deaths in 2015 among persons living with diagnosed HIV (data accessed from eHARS on June 30, 2017).

New diagnoses of HIV infection and deaths from HIV/AIDS have gradually decreased over the past five years. These decreases are attributed to a number of factors, including the availability of antiretroviral medications through the Ryan White Part B Program, behavioral interventions performed by our HIV Prevention Program, Partner Services (PS) activities conducted through our STD Program, and vast improvements in the timeliness and availability of HIV laboratory data from our Surveillance Program.

Disparities by gender, race/ethnicity, age, HIV transmission risk, and geography contribute to the distribution of new HIV diagnoses, people living with diagnosed HIV infection, and health care outcomes among people living with HIV in Tennessee. In 2016, individuals diagnosed in Tennessee were predominantly young black men who have sex with men (MSM). Further, 6% of the new HIV diagnoses self-reported injection drug use and, of these, 46% were also MSM.

As **Figure 1** shows, the newly diagnosed HIV case rate in Tennessee for 2016 was 11.0 cases per 100,000 persons. Darker shaded areas bear a higher burden of HIV cases based on the population within that specific county.

Figure 2 depicts the burden of HIV within Tennessee counties based on the current address of a living person with HIV/AIDS as of December 31, 2016 (269.1 per 100,000 persons statewide). For both new and living cases, the areas most affected by HIV cases include the metropolitan areas of Memphis, Nashville, and Chattanooga, as well as neighboring counties.

[4] https://apps.health.tn.gov/ReportableDiseases/Common/2017_List_For_Healthcare_Providers.pdf
[5] https://apps.health.tn.gov/ReportableDiseases/Common/2017_List_For_Laboratories.pdf

Figure 1: Case Rates of Persons with Newly Diagnosed HIV Infection in Tennessee by County – 2016

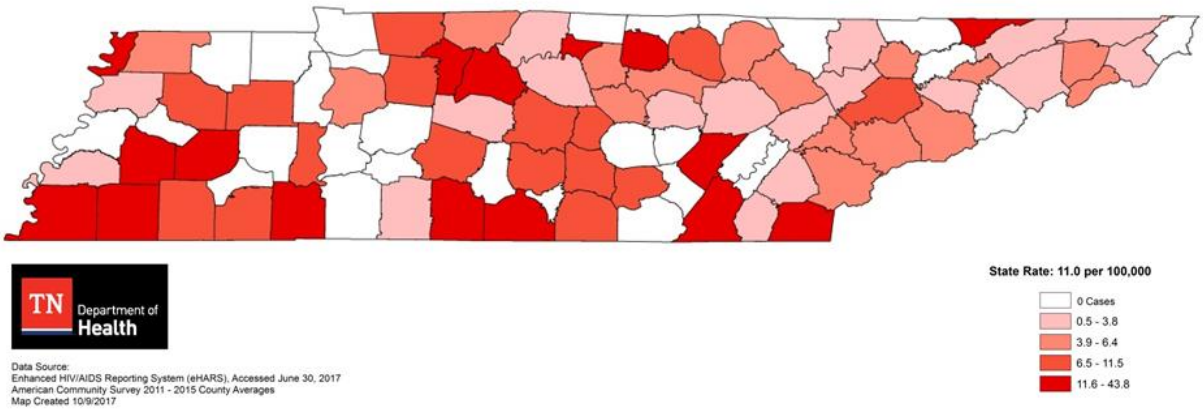
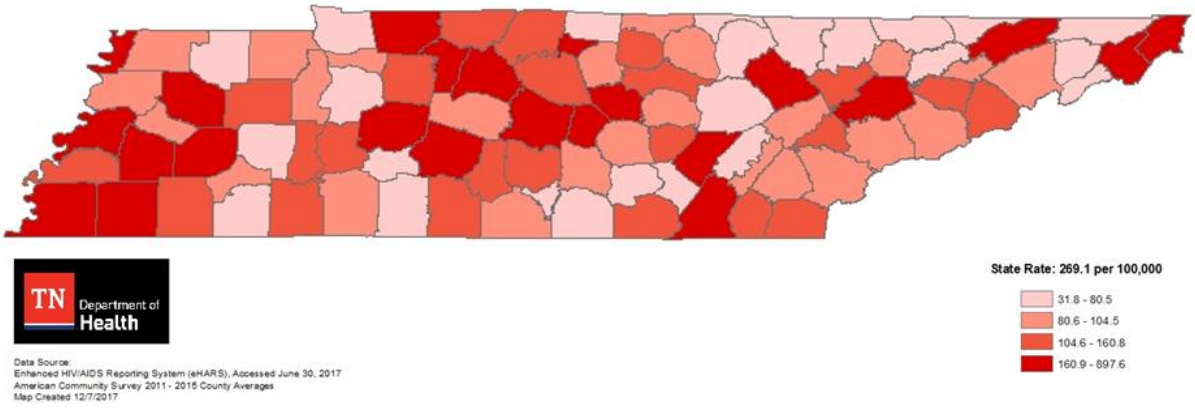


Figure 2: Case Rates of Persons Living with Diagnosed HIV Infection in Tennessee by County – 2016



HCV in Tennessee

In Tennessee, acute HCV cases are reportable by providers and laboratories, while chronic cases of HCV are reportable by laboratory only[6,7].

In March 2015, the Viral Hepatitis (VH) Section was incorporated into the HIV/STD program. At that time, VH surveillance efforts were expanded and the process for data collection and entry of HCV laboratory reports was streamlined. Beginning in July 2015, chronic HCV paper laboratory reports have been sent by the regions to TDH Central Office for data entry and creation of investigations, utilizing with CDC/CSTE case definitions. As of March 30, 2016, each public health region received in-person training by VH Surveillance staff. AVH user guide was developed to facilitate this effort and is available upon request.

As data collection continues to improve, reported cases of acute and chronic HCV will become more reflective of the true burden of disease in Tennessee. Although there have been no outbreaks of acute HCV in Tennessee, the eastern part of the state is disproportionately affected by both acute and chronic HCV.

As **Figure 3** shows, the newly diagnosed acute HCV case rate in Tennessee for 2016 was 3.7 cases per 100,000 persons. Darker shaded areas bear a higher burden of HCV cases based on the population within that specific county.

Figure 4 depicts the burden of newly reported chronic HCV within the Tennessee public health regions in 2016 (272.9 per 100,000 persons statewide).

[6] https://apps.health.tn.gov/ReportableDiseases/Common/2017_List_For_Healthcare_Providers.pdf
[7] https://apps.health.tn.gov/ReportableDiseases/Common/2017_List_For_Laboratories.pdf

Figure 3: Case Rates of Reported Acute Hepatitis C in Tennessee in by County - 2016

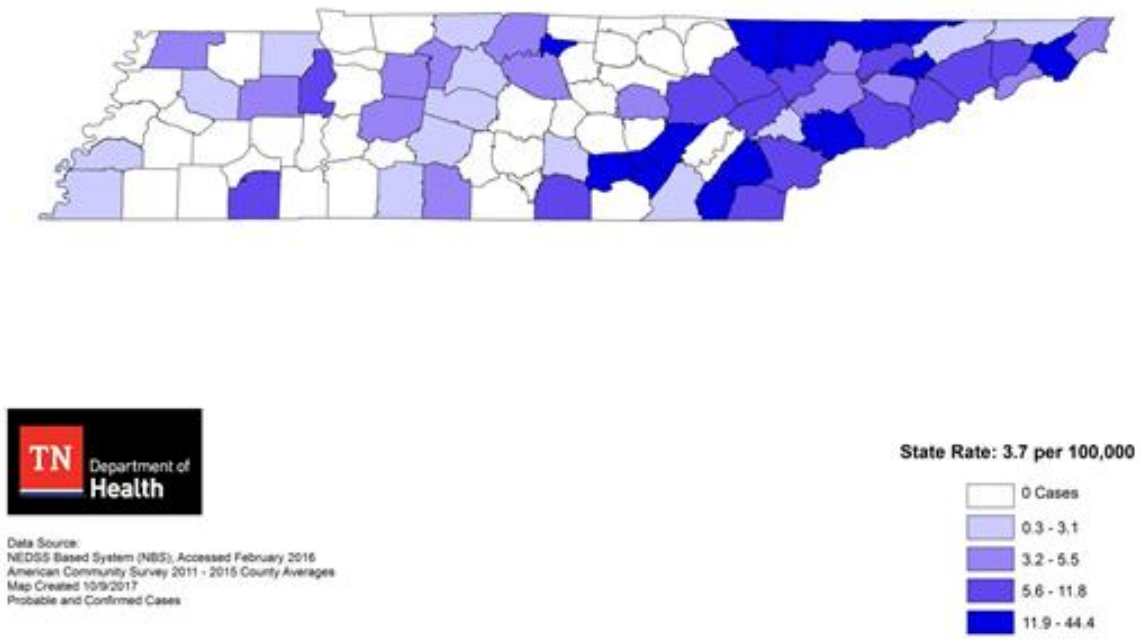
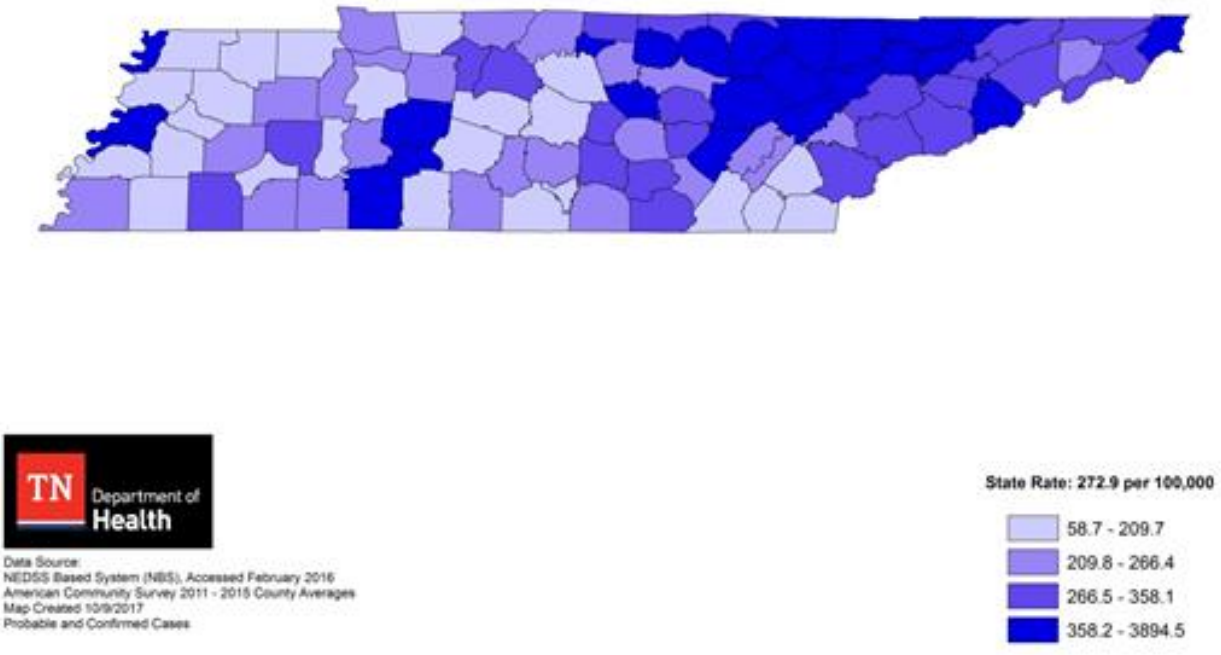


Figure 4: Case Rates of Newly Reported Chronic Hepatitis C Cases in Tennessee by County – 2016



Routine Surveillance

TDH's HIV and VH Surveillance Programs systematically collect, analyze, interpret, and disseminate data to characterize trends in infection, detect active transmission, implement public health interventions, and evaluate public health response. HIV, acute HCV, and chronic HCV are nationally notifiable conditions and are reported to CDC. All cases of newly diagnosed HIV or acute HCV must have a field investigation, while chronic HCV does not require a field investigation. Field investigations include an interview with the patient to assess ongoing risk factor(s), risk reduction messaging, and elicit additional PS information. On an ongoing basis, Central Office epidemiologists work closely with regional health departments to support data collection and entry into the appropriate surveillance systems.

HIV Routine Surveillance

Tennessee's Enhanced HIV/AIDS Reporting System (eHARS) is a browser-based application provided by CDC. TDH's HIV Surveillance Program uses eHARS to collect and monitor information on individuals who are newly diagnosed or living with HIV. All newly diagnosed cases of HIV must have a field investigation.

HCV Routine Surveillance

HCV data are housed in the National Electronic Disease Surveillance System (NEDSS) Based System (NBS) provided by CDC. TDH's VH Surveillance Program uses NBS to collect and monitor information for individuals with acute and/or chronic HCV, as well as all other reportable conditions exluding HIV, Gonorrhea, Chlamydia, and Syphilis.

On January 1, 2017 chronic HCV was added as a reportable disease for laboratories only and passive surveillance is conducted at the Central Office. Prior to this, cases of chronic HCV were identified based on information received when classifying suspected acute infections (e.g. received laboratory results).

Enhanced Surveillance

HIV Enhanced Surveillance

Reportable HIV data are extracted from eHARS to provide situational awareness reports, by public health region, on a weekly and monthly basis. Monitoring and evaluation of HIV surveillance includes weekly temporal cluster analyses using traditional algorithms for aberration detection, monthly threshold reports, and review of risk factor information.

Weekly Analysis of Newly Reported Cases by Public Health Region - Using data from eHARS, a report is generated each Monday to identify newly reported cases of HIV by public health region. If a higher than expected number of cases is reported in a public health region (e.g., comparison to the monthly mean over the prior 18-months), additional analyses at the region (and potentially county-level) are conducted by a TDH Central Office epidemiologist. This analysis will determine if the individuals reported meet the surveillance case definition for HIV and to further ascertain risk factor information.

Monthly Analysis of Newly Reported Cases Across the State and by Program-identified Regions - Two weeks after the end of each month, a threshold report is generated by a Central

Office epidemiologist to examine the number of new HIV cases in Tennessee, overall and by public health region. The report is distributed to and monitored by HIV/STD supervisors in the Metro Health Departments, Public Health Regional Offices, the STD Prevention Program Director, and the HIV Surveillance Director. This report indicates if the number of HIV diagnoses is in the range of what is expected, or if the number is higher than expected at either a "warning" level or at a "rapid response" level. A warning level is indicated when the number of new cases is equal to the mean number of new cases for the past eighteen months plus one standard deviation. If the number of new cases is equal to the mean number of new cases of the past eighteen months plus two standard deviations, a rapid response is indicated. Additionally, the number of new cases for each of the last three months is used for monitoring trends.

If a warning or rapid response level is detected, a Central Office epidemiologist will complete analyses at the county level, including verifying that cases are new Tennessee HIV cases, examining risk factor information, reviewing the county and facility of diagnosis, and accessing PRISM to determine if the cases are connected through a shared partner(s) and, if they are, monitoring partner outcomes. If a cluster is identified, the response team will assemble and follow the procedures outlined in this document. The Medical Director will determine when to notify leadership of the cluster, and potential outbreak.

Monthly Analysis of Risk Factors of Reported Cases - On a monthly basis, a report is prepared to examine cases reported among IDU and MSM/IDU during the last three years, by county. If the number of cases in the current year is high compared to previous years or a county only has a case identified in the current year, a Central Office epidemiologist and regional field staff will investigate to determine if there is a potential cluster. If a cluster is identified, the response team will assemble and follow the procedures outlined in this document. The Medical Director will determine when to notify leadership of the cluster, and potential outbreak.

HCV Enhanced Surveillance

The Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) is used for acute HCV (probable and confirmed case status) to provide situational awareness. Reportable HCV disease data are extracted from the primary reportable disease surveillance system, NBS, in CSV format and are transferred to ESSENCE by secure file transfer protocol using a daily, scheduled SAS program. MyESSENCE was used to build a situational awareness dashboard for HCV surveillance staff. These dashboards were developed to display reports statewide and in the 24 eastern counties of the state where HCV prevalence is highest.

The HCV dashboard includes daily and weekly temporal cluster analyses using traditional algorithms for aberration detection, spatial cluster analysis using zip code, and a line list of open investigations. The HCV dashboard facilitates simple record-level investigation of cases or clusters and allows for the rapid quantification of demographic variables in detected clusters.

Situational awareness dashboards allow for timely and responsive monitoring of acute HCV temporal and spatial trends—functionality not available in NBS. Visualizations and basic demographics are accessible in one application allows real-time sharing of information with public health staff. ESSENCE's ability to identify aberrations allows staff to easily investigate and describe clusters of cases and quickly determine if additional follow up is warranted.

Daily Analysis of Temporal/Spatial Aberrations of Reported Cases - One of the viral hepatitis epidemiologists examines MyESSENCE each day for any aberrations (warning or alert). If an aberration is detected, a line listing is produced and temporal and spatial trends are examined. Each case is looked up in NBS to examine supplemental information (i.e. comments) within each investigation that are not visible within MyESSENCE. Once any potential clusters are ruled out (based on location, age, and risk factors), risk factors are examined closely for any potential HAI infection. If a client indicates they have no self-reported risk factors but had a medical procedure involving blood, the case is sent to HAI for further investigation. If the patient has a sexual or needle sharing contact and also indicates a medical procedure involving blood, and an epidemiological risk factor to the sexual or needle sharing partner is not available, the HCV epidemiologist will contact the regional field staff for further follow-up.

All aberrations, and their outcomes, are tracked on a de-identified Microsoft Excel spreadsheet and kept on the VH shared drive. This allows the VH epidemiologists to communicate to each other with regard to which cases/aberrations have been thoroughly examined.

Assignment of Responsibilities

Responsibilities: Investigation of a Cluster

HIV/HCV clusters will be identified by the TDH HIV or VH Surveillance Programs or at the regional/local health department level. The decision to declare an outbreak will be made by program leadership and will be informed by the findings from the cluster investigation.

Responsibilities that will be followed in the event of a cluster investigation are outlined below:

HIV Surveillance & Epidemiology Program and VH Program Directors

- Document Timeline of Events, including start date of investigation
- Notify CEDEP leadership and other stakeholders, as appropriate
- Provide regional leadership with copies of the following:
    - Outbreak Response Plan
    - Outbreak Response Questionnaire (Appendix E)
    - Situation Analysis Report
    - JIT Trainings for HIV and HCV Testing
    - Laboratory Specimen and Collection Transport Guidance (Appendix D)
- Grant REDCap database access to regional epidemiologist(s)
- Determine Central Office and Regional ICS
- Determine Regional/Metro and Central Office call schedule; provide Situation Report Template (Appendix F); determine if additional staffing resources needed/deploy
- Determine which laboratory tests will need to be run; review/update specimen collection and transport guidelines with state laboratory and regional staff; appoint Central Office staff member to communicate real-time laboratory results to region via secure Excel spreadsheet

HIV Epidemiology Lead

- Complete Cluster Investigation Template for HIV (Appendix A)
- Compile epidemiology curve for HIV data
- Compile ongoing line list of cases and contacts for HIV data
    - Provide STATENOs to VH Surveillance for HCV co-infection analysis
    - Provide STATENOs to STD Prevention for PRISM partner and risk factor ascertainment
- Manage outbreak response questionnaire and subsequent REDCap data entry
- Initiate Social Network Analysis
- Perform ongoing data reconciliation: REDCap to eHARS

VH Surveillance Director

- Complete Cluster Investigation Template for HCV (Appendix A)
- Compile epidemiology curve for HCV data
- Compile ongoing line list of cases and contacts for HCV data
- Identify HIV/HCV co-infections
- Perform Accurint searches, as requested

- Appoint dedicated staff to immunization registry to determine Hepatitis A and Hepatitis B vaccination Status
- Perform ongoing data reconciliation: REDCap to NBS

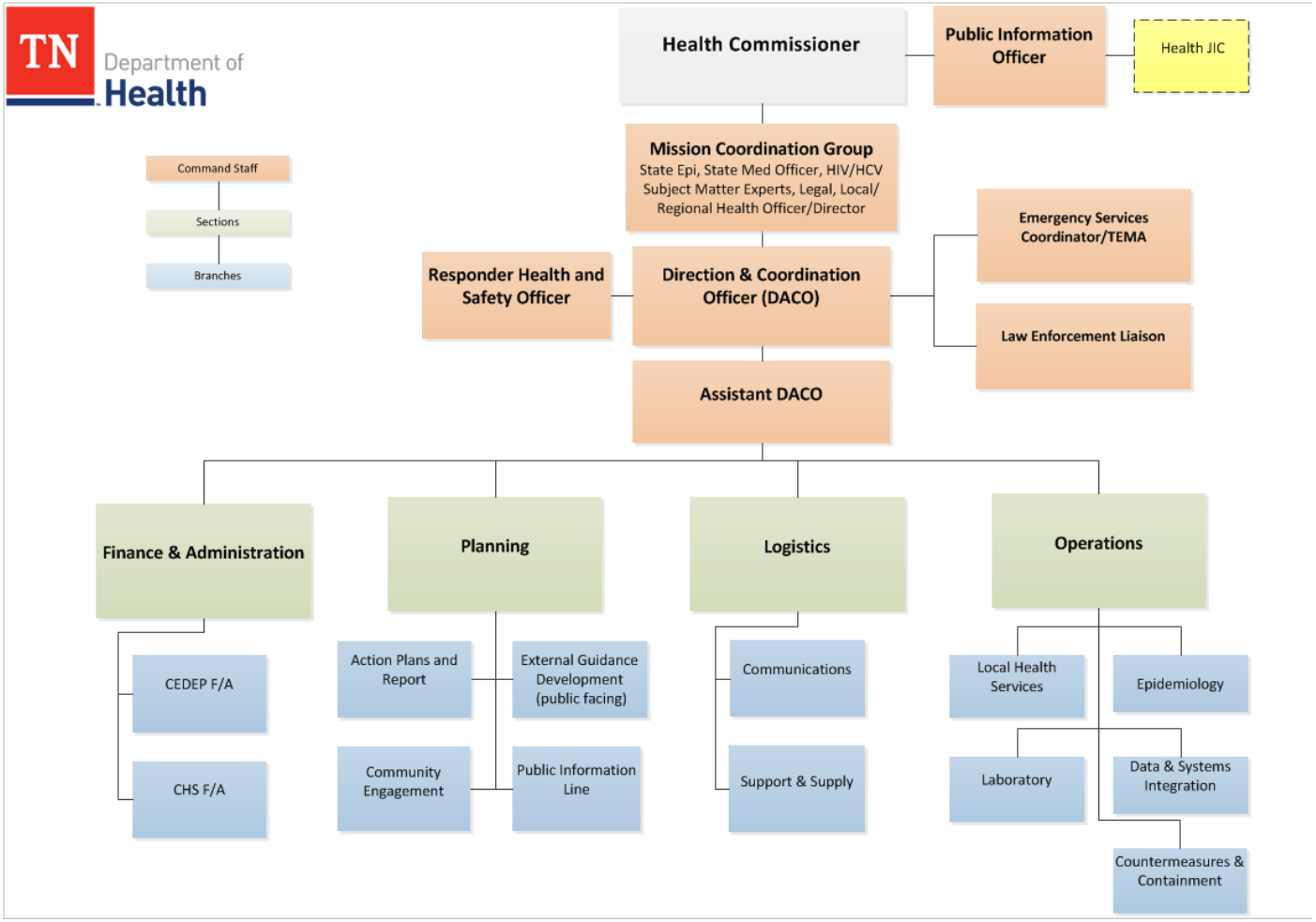
STD Epidemiology Lead

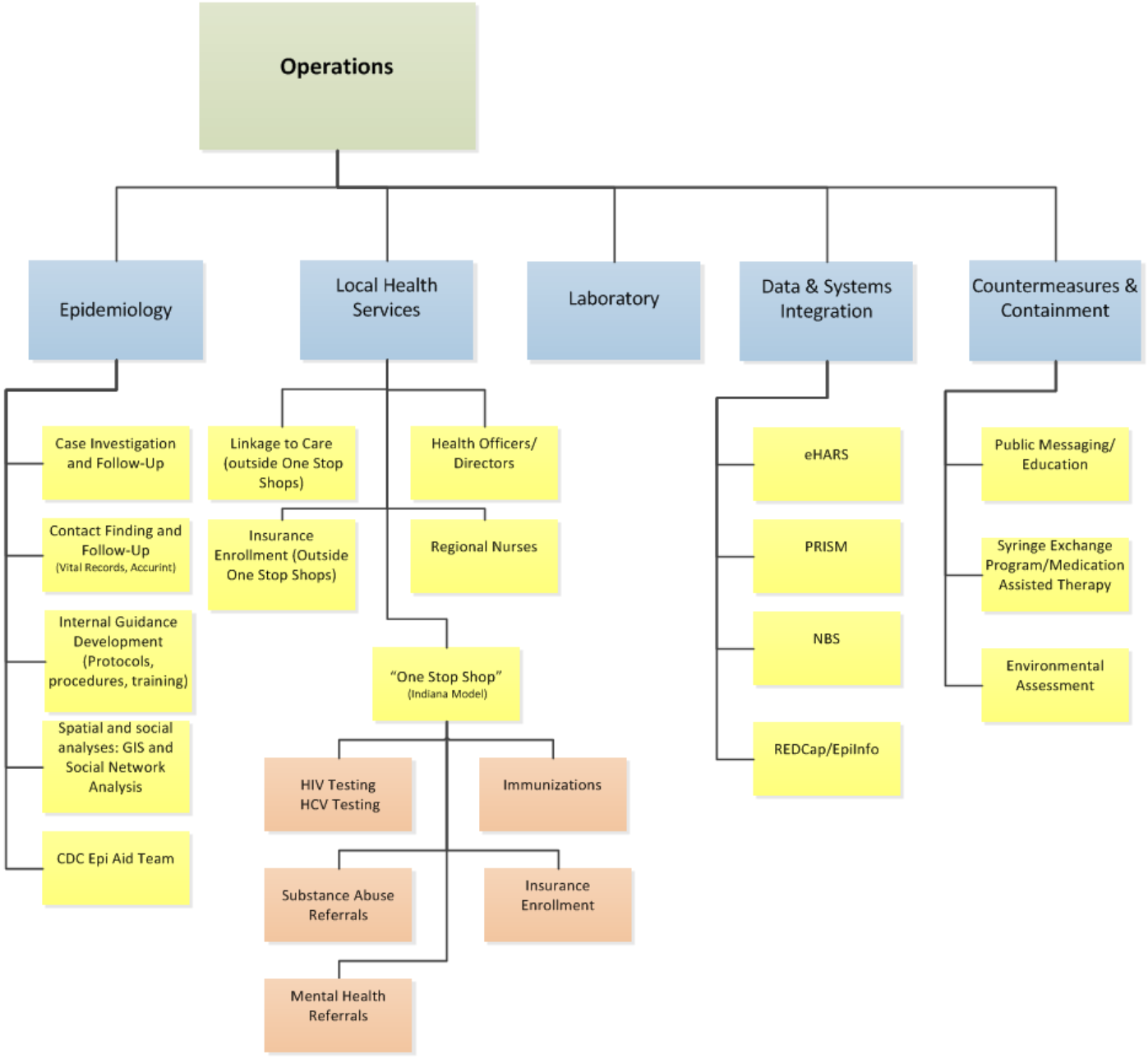
- Compile ongoing line list of partner and risk factor information from PRISM for HIV cases and contacts
- Perform ongoing data reconciliation: REDCap to PRISM

Responsibilities: Declaration of an Outbreak

Upon declaration of an outbreak, the Central Office response will be organized in the following incident command structure (to be adjusted as needed based on situational needs). Local/Regional leadership and Central Office leadership will discuss and determine (at the time of the incident) whether to operate within a joint/unified command structure, or if separate parallel command structures (with liaisons from each agency embedded each other's command structure) will be activated. Local/Regional Leadership will need to determine an incident command structure and communicate that to Central Office Leadership.

Proposed Incident Command Structure




Operations
Epidemiology
Local Health Services
Laboratory
Data & Systems Integration
Countermeasures & Containment
Case Investigation and Follow-Up
Contact Finding and Follow-Up
(Vital Records, Accurint)
Internal Guidance Development (Protocols, procedures, training)
Spatial and social analyses: GIS and Social Network Analysis
CDC Epi Aid Team
Linkage to Care (outside One Stop Shops)
Insurance Enrollment (Outside One Stop Shops)
Health Officers/ Directors
Regional Nurses
"One Stop Shop"
(Indiana Model)
HIV Testing
HCV Testing
Immunizations
Substance Abuse Referrals
Insurance Enrollment
Mental Health Referrals
eHARS
PRISM
NBS
REDCap/EpiInfo
Public Messaging/ Education
Syringe Exchange Program/Medication Assisted Therapy
Environmental Assessment

Immediate and Ongoing Actions Upon Declaration of an Outbreak

The tasks below provide a framework for immediate actions once a cluster has been investigated and an outbreak has been declared. In addition to the below, cluster activities continue throughout the response (see 'Responsibilities: Investigation of a Cluster').

Task	Responsible Team
Identify Central Office Liaison to Serve in the Regional Health Operations Center and Provide Updates to Central Office staff	Local/Regional Health Department Leadership/DACO
Activation of Public Hotline and Development of REDCap Database to Track Call Volume and Nature	PIO/Communications/External Guidance Development (Planning Section)
Outreach to Area Providers with "what to look for, and who to call" Type Message via Local Networks and Medscape	External Guidance Development (Planning Section)
Coordinate Communication with CDC	Central Office DACO
Respond to Local Media Inquiries	Local/Regional PIO (with Central Office support)
Inform and Collaborate with Local CBO(s) and Syringe Service Programs to Facilitate Outreach and Decrease risk of Transmission (i.e. PrEP, clean needles/syringes, treatment, etc.)	Local/Regional Health Department Leadership/DACO/Operations

Appendices

Appendix A – Cluster Investigation Template

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HIV Cluster Investigation

Jurisdictions(Counties): MidCumberland (Williamson), Nashville
Cases: 4
Contacts Under investigation: 2
Notes: Additional contacts anticipated

Laboratory Confirmed Cases

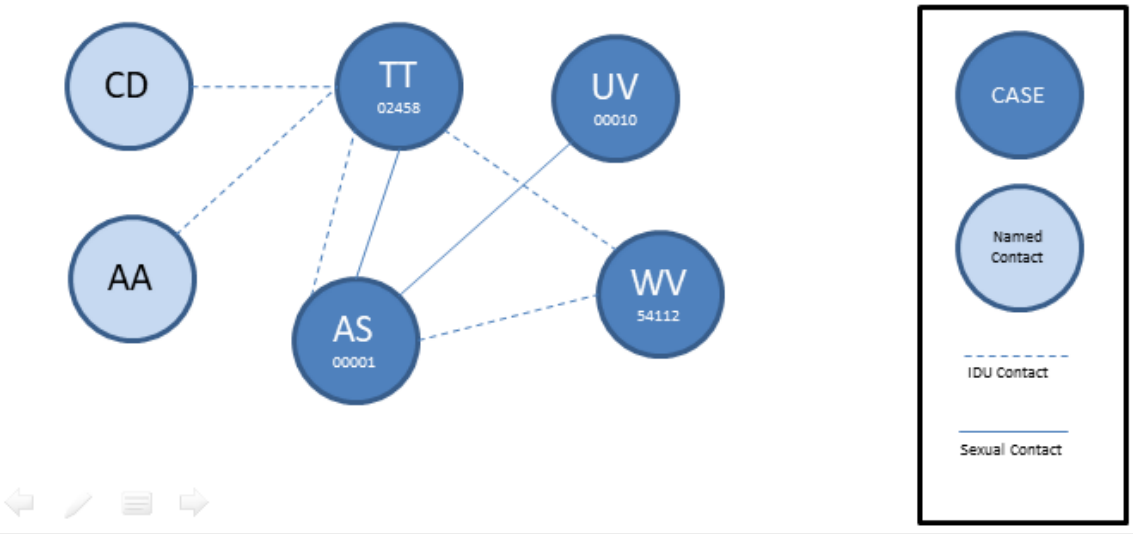
Contacts = sexual partners or needle-sharing partners

County	STATENO	Initials	Sex	Age	HIV Positive?	HIV Diagnosis Date	HCV Positive?	IDU ?	# Named Contacts
Davidson	00001	AS	M	19	Y	10/01/16	Y	Y	3
Davidson	00010	UV	F	33	Y	10/17/16	U	N	1
Davidson	02458	TT	M	45	Y	11/01/16	U	Y	4
Williamson	54112	WV	F	47	Y	10/18/16	U	Y	2

Contacts Under Investigation (HIV status unknown)

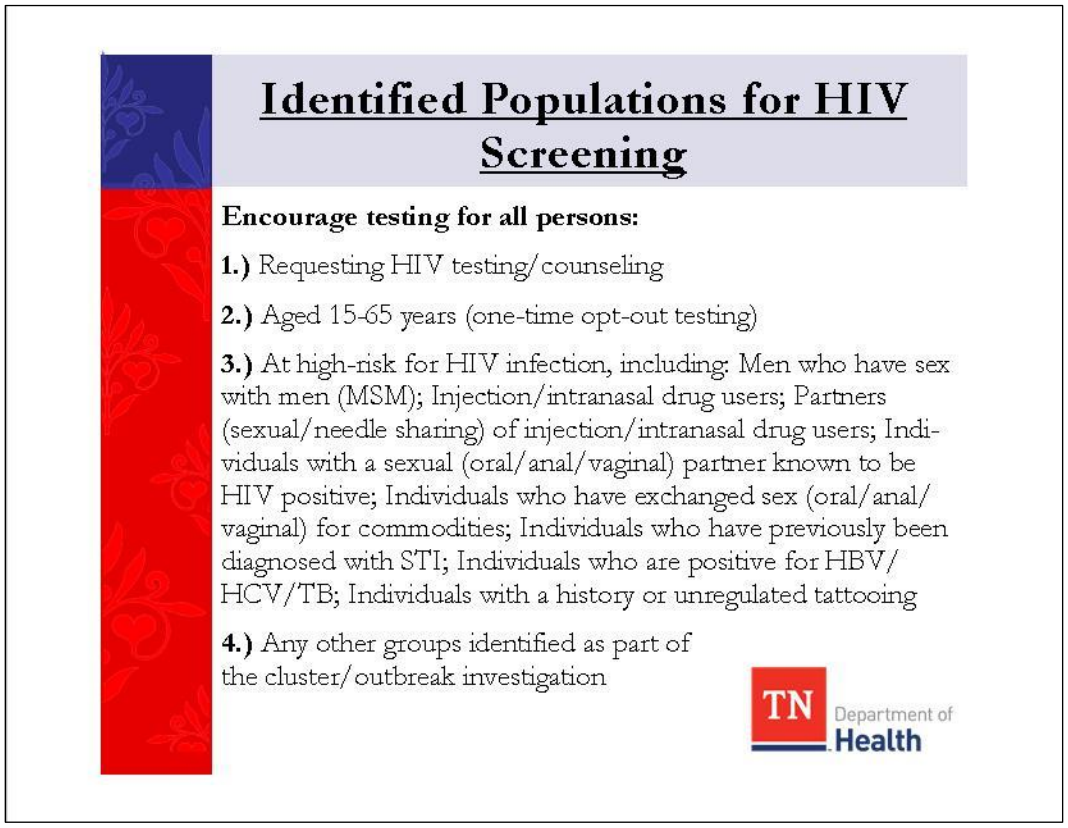
Contacts = sexual partners or needle-sharing partners

County	STATENO	Initials	Sex	Age	HIV Positive?	HIV Diagnosis Date	HCV Positive?	IDU ?	# Named Contacts
Davidson		CD	M	28				Y	1
Davidson		AA	F	40				Y	1

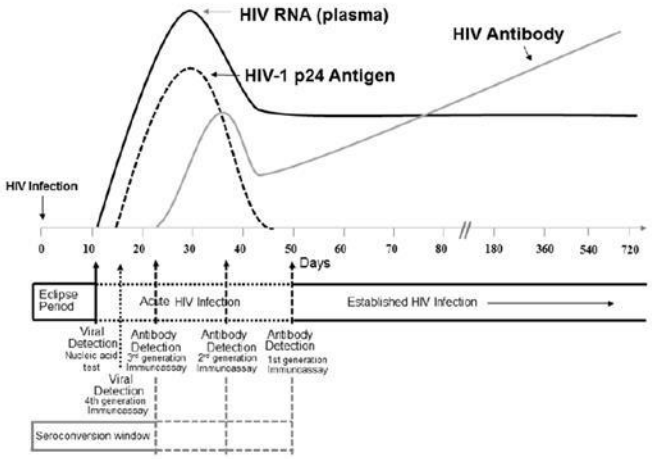


Appendix B – HIV Just in Time Training

The following training should be used to train health department staff that might not be familiar with HIV:



Laboratory Markers for HIV-1 Infection



TN Department of Health

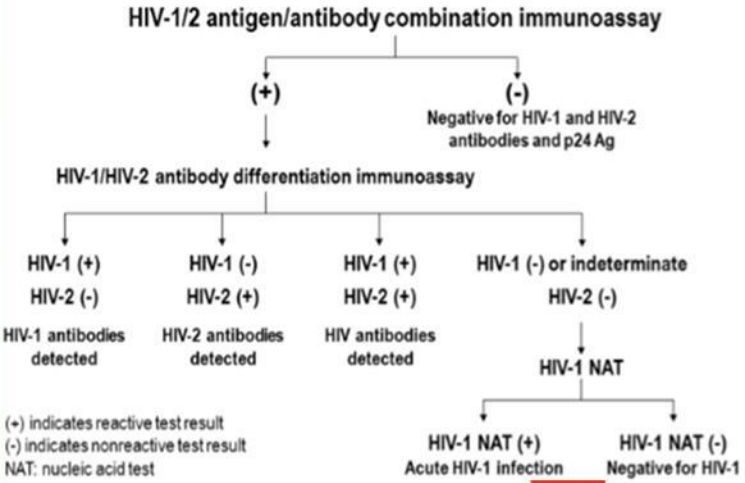
HIV Pre-test Counseling

Risk reduction counseling for <u>all</u> clients:

- **Do not share** any needles or other equipment to inject or snort drugs, including dollar bills, straws, needles, cooker, and filters
- **Avoid** unregulated tattoos, body piercings, or permanent cosmetics
- **Do not share** any items that may come in contact with another person's blood (medical equipment, personal items)
- **Use condoms** consistently during all sexual activity
- **Know your status** and the status of those with whom they engage in sexual activities

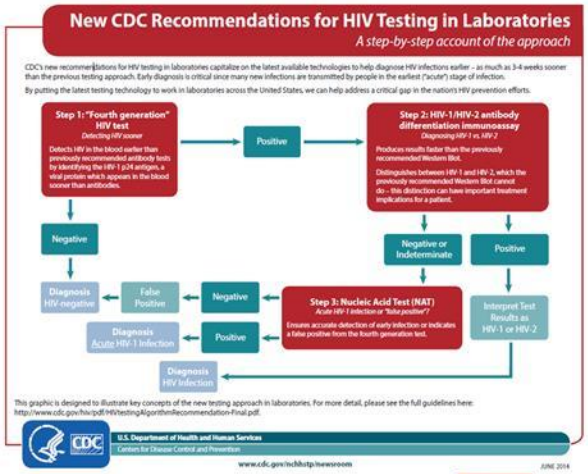
TN Department of Health

HIV Testing Algorithm and Interpretation



TN Department of Health

HIV Testing Algorithm and Interpretation



TN Department of Health

HIV Post-test Counseling

Review test results (refer to slides 4 & 5 for testing algorithm and interpretation)

For HIV positive clients:

1.) Refer to provider

2.) Encourage adherence to HIV treatment regimen as prescribed

3.) Discuss relevant HIV state laws regarding disclosure of status

For HIV negative clients

1.)Encourage high-risk* patients to talk to their provider about Pre-Exposure Prophylaxis (PrEP)

Always ask patients if they have questions or concerns

Direct to reliable sources for additional information

*see slide 1

TN Department of Health

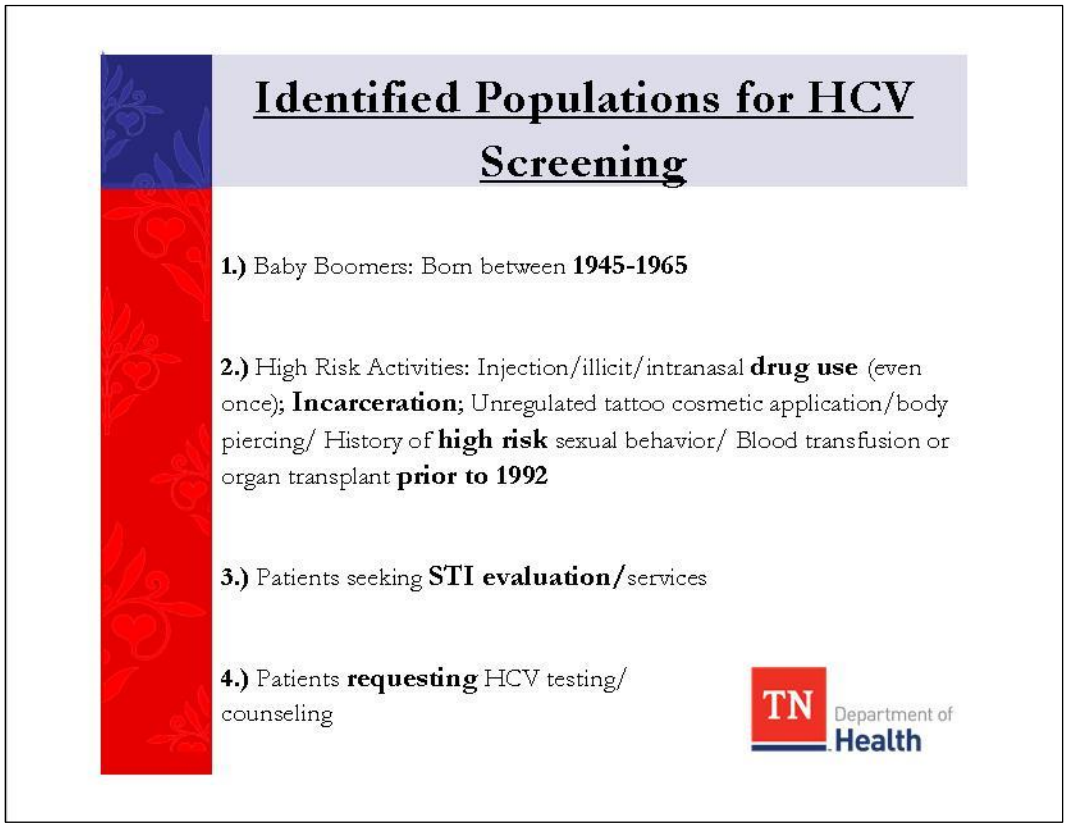
Molecular HIV Testing (i.e., Genotyping)

Who: **For cluster investigations; will be notified by Central Office**
10 ml SST (Tiger/Marble Top) Tube
Clot room temp; centrifuge within 4 hours of collection; then refrigerate
Label with **2 IDENTIFIERS AND** write **REDCap Outbreak #** on label
Courier pickup same day; to Nashville Lab; use **Red** Nashville label

TN Department of Health

Appendix C –HCV Just in Time Training

The following training should be used to train health department staff that might not be familiar with HCV:



HCV Pre-Test Counseling

- **Don't share** needles or other equipment to inject or snort, includes dollar bills, straws, needles, cookers and filters
- **Avoid** unregulated tattoos, body piercings or permanent cosmetics
- **Don't share** any items that may come into contact with another persons **BLOOD** (**razors, toothbrushes, nail clippers, diabetic equipment**)
- **Use condoms** consistently during all sexual activity
- Receive both **Hepatitis A and B vaccines** to protect the liver
- **Pre-conception** counseling

TN Department of Health

Testing/Interpretation

HCV Ab NEGATIVE: most likely not infected; assess for ongoing risk

HCV Ab POSITIVE: HCV RNA testing needed (TN State Lab; automatic RNA reflex testing)

HCV Ab POSITIVE/HCV RNA NEGATIVE: infection cleared/not currently infected; assess for ongoing risk

HCV Ab POSITIVE/HCV RNA POSITIVE: currently infected, evaluation & treatment needed by experienced provider; **Counsel** of results; **Report to VH Care Navigator**

TN Department of Health

HCV RNA-Positive Additional Post-Test Counseling

- Preconception counseling/contraception; reduce unintended pregnancy and mother-to-child transmission
- See your doctor regularly
- Hepatitis C is curable
- Avoid alcohol; consult a health care provider before taking any over the counter medication
- Refrain from donation blood, semen, organs or tissue
- Join a support group to learn more about the disease and ways to improve your health
- Always ask patients if they have questions or concerns
- Direct to reliable sources for additional information

TN Department of Health

GHOST Testing

GHOST
Who: **For cluster investigations; will be notified by Central Office**
10 ml SST (Tiger/Marble Top) Tube
Clot room temp; centrifuge within 4 hours of collection; then refrigerate
Label with **2 IDENTIFIERS** AND write REDCap Outbreak # on label
Courier pickup same day, to Nashville Lab; use **Red** Nashville label
Diagnosis code: **Z1159** (screen for viral diseases)
Program code: **EI**
LOE PTBMIS: HEPC + supplemental screen; **Note:** No LOE for HBsAG so need paper requisition to request

TN Department of Health

Appendix D – HIV/HCV Testing and Specimen Collection and Transport Guidance

HIV Testing

HIV: The state laboratory will test for an HIV- ½ antibody/antigen test followed by an HIV-1/2 antibody type differentiating immunoassay with a reflex to a HIV-1 NAT if HIV-1 is negative or indeterminate. Samples with a positive confirmatory test will be sent to CDC for HIV molecular testing.

HIV Molecular Testing

HIV sequencing data can be used to confirm if the cluster under investigation has genetically similar strains of HIV, indicating potential epidemiological links, i.e., HIV transmission networks. In the event of a cluster or an outbreak, the TDH State Laboratory, located in Nashville, TN, will transmit serum samples to CDC for genetic sequencing.

HCV Testing

HCV: The state laboratory will test for antibody with automatic reflex to RNA. For those that are RNA positive, GHOST testing will be employed at the state laboratory.

Global Hepatitis Outbreak Surveillance Technology (GHOST)

GHOST is a CDC developed bioinformatics tool that allows for advanced molecular detection to determine and disrupt transmission networks. In the event of an outbreak, the TDH State Laboratory, located in Nashville, TN, has the capacity to conduct GHOST testing and has been trained by CDC on this technology.

Specimen Collection and Transport Guidance

The following collection, storage, and transport guidance should be followed for both HIV and HCV testing in the event of a cluster or outbreak.

Collection and Storage

1. Syringes, needles, and collection tubes should be clean, dry, and sterile to prevent contamination and hemolysis of the specimen. Vacutainer tubes (or equivalent) may be used and should have labels attached securely for patient identification.

2. Draw **two 10ml red top or tiger top tubes** of blood and allow it to clot at room temperature. One tube will be for HIV and HIV molecular testing and one tube will be for HBV, HCV, and GHOST testing. Ideally, blood should not be taken within 1 hour after a meal to avoid chylous serum. Identify the specimen with name of the patient immediately after collection to avoid error. Tubes must be labeled with at least two unique identifiers to be acceptable for testing (e.g. name and date of birth). Place the PTBMIS lab order label with barcode lengthwise on the specimen tube **with the REDCap Outbreak # handwritten on the label and highlighted with a pink highlighter**. Do not interchange labels. Labels are specific for the test ordered (e.g. do not place an HIV specimen label on the tube intended for HCV testing).

> Note: **If collected in a tiger-top tube**, specimens must be centrifuged prior to refrigeration. Centrifuge for 15 minutes at approximately 3300 rpm. Specimens collected in a 10ml red top do not need centrifugation prior to transport to the laboratory. If 10 ml tubes are needed, please contact the state laboratory.

3. **Refrigerate** the specimens until time to place out for the courier. If desired, cold packs may be placed in the lockbox to keep samples cold until pickup by the courier.

Transport

1. Specimens should be sent to the laboratory by state courier at the end of the collection day. Specimens for HCV should be **labeled with the red NASHVILLE courier label** to ensure specimens are delivered to the correct laboratory. HIV, RPR and CT/GC specimens collected on the same patient will continue to be delivered to the appropriate regional lab for testing and should be labeled accordingly.

> **Note:** If the Nashville courier only picks up on Mondays, Wednesdays, and Fridays, then specimens can be refrigerated for up to one additional calendar day prior to pick-up.

2. All specimens should be packed with absorbent material to prevent breakage and to absorb fluid if breakage or leakage should occur.

3. Specimens sent via state courier should be shipped in mailing containers approved by the Department of Transportation and should be packaged and labeled in accordance to DOT regulations.

Appendix E - HIV/HCV Questionnaire

The following questionnaire should be utilized to interview patients in the event of a cluster or outbreak. Epidemiologist and DIS teams are recommended.

Demographic Information for Suspected HIV/HCV Outbreak

Date Completed (mm/dd/yy): _____/_____/_____ Completed By: _____
Phone Number: (____) ____—_____
Place of Interview: ◻ Clinic ◻ Field ◻ Internet ◻ Telephone ◻ Other
If other please specify: _____

DEMOGRAPHIC INFORMATION

REDCap Patient ID #: _____

First Name (P, E, N): _____ Middle Name (P, E, N): _____ Last Name (P, E, N): _____
Other Name (P, E): _____

Date of Birth (mm/dd/yy) (P, E, N): ____/_____/_____ Current Age (Years): _____

Birth Sex (P, E, N): ◻ Female ◻ Male ◻ Refuse to Answer ◻ Unknown

Current Gender (P, E): ◻ Female ◻ Male ◻ Transgender Male-to-Female
◻ Transgender Female-to-Male
◻ Additional Gender Identity (please specify: _____)
◻ Refuse to Answer

Ethnicity (P, E, N): ◻ Hispanic ◻ Non-Hispanic

Race (P, E, N): ◻ White ◻ Black ◻ Asian ◻ American Indian/Alaska Native
◻ Native Hawaiian or Other Pacific Islander ◻ Multi-Race
◻ Other (please specify: _____) ◻ Refuse to Answer, Unknown

Marital Status (P, E, N): ◻ Separated ◻ Married ◻ Divorced ◻ Single ◻ Widowed

Primary Language Spoken: _____
Translator Needed: ◻ Yes ◻ No

Address Type (E): ◻ Residential ◻ Bad Address ◻ Correctional Facility
◻ Foster Home ◻ Homeless ◻ Postal ◻ Shelter ◻ Temporary

Street Address 1 (P, E, N): _____Street Address 2 (P, E, N): _____

City (P, E, N): _____ State (P, E, N): _____ Zip Code (P, E, N): _____
County (P, E, N): _____

What other states/countries have you lived in besides Tennessee?: _____

Other Locations/Hangouts (school, work, parks, neighborhoods, etc.): _____

Primary Phone Number (P, E, N): (____) ____—_____

Other Phone Number (P, E, N): (____) ____—_____

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Female Patient for Suspected HIV/HCV Outbreak

First Name: _____ Middle Name: _____ Last Name: _____
Date of Birth (mm/dd/yy): _____/_____/_____ REDCap Patient ID #: _____
Date Completed (mm/dd/yy): _____/_____/_____ Completed By: _____

PREGNANCY INFORMATION

1. Currently Pregnant (P, E, N): ◻ Yes ◻ No ◻ Unknown
   If yes:
   Due Date (mm/dd/yy) (P, E, N): _____/_____/_____
   Receiving gynecological or obstetrical services (P, E, N) : ◻ Yes ◻ No ◻ Unknown
   If yes, who is your provider (Name and Phone Number) (P, E, N):
   _____

2. Previously delivered live-born infants (E): ◻ Yes ◻ No ◻ Unknown
   If yes:
   Number of live-born infants (E): _____
   Are you currently breastfeeding (E): ◻ Yes ◻ No

BIRTH HISTORY (E)

Child One

Child's First Name: _____ Child's Last Name: _____
Child's Date of Birth (mm/dd/yy): _____/_____/_____
Facility Name (If child was born at home, enter "home birth"): _____
Facility Type: ◻ Inpatient ◻ Outpatient ◻ Other Facility (please specify: _____)
Facility Street Address: _____ Facility City: _____
Facility State: _____ Facility Zip Code: _____ Facility County: _____

Child Two

Child's First Name: _____ Child's Last Name: _____
Child's Date of Birth (mm/dd/yy): _____/_____/_____
Facility Name (If child was born at home, enter "home birth"): _____
Facility Type: ◻ Inpatient ◻ Outpatient ◻ Other Facility (please specify: _____)
Facility Street Address: _____ Facility City: _____
Facility State: _____ Facility Zip Code: _____ Facility County: _____

Child Three

Child's First Name: _____ Child's Last Name: _____
Child's Date of Birth (mm/dd/yy): _____/_____/_____
Facility Name (If child was born at home, enter "home birth"): _____
Facility Type: ◻ Inpatient ◻ Outpatient ◻ Other Facility (please specify: _____)
Facility Street Address: _____ Facility City: _____
Facility State: _____ Facility Zip Code: _____ Facility County: _____

Child Four

Child's First Name: _____ Child's Last Name: _____
Child's Date of Birth (mm/dd/yy): _____/_____/_____
Facility Name (If child was born at home, enter "home birth"): _____
Facility Type: ◻ Inpatient ◻ Outpatient ◻ Other Facility (please specify: _____)
Facility Street Address: _____ Facility City: _____
Facility State: _____ Facility Zip Code: _____ Facility County: _____

HIV/HCV Testing for Suspected HIV/HCV Outbreak

First Name: _____ Middle Name: _____ Last Name: _____
Date of Birth (mm/dd/yy): ____/____/_____ REDCap Patient ID #: _____
Date Completed (mm/dd/yy): ____/____/____ Completed By: _____

HIV HISTORY (P)

1. Have you had a previous HIV test:
   ◻ Yes ◻ No ◻ Don't Know
   If yes:
   What was the test result of most recent test? ◻ Positive ◻ Negative ◻ Don't Know
   If positive:
   Date of first positive HIV test (mm/dd/yy): ____/____/_____
   In which state did you first test positive: _____
   Are you currently in care or treatment for HIV?
   ◻ Yes ◻ No ◻ Don't Know
   If yes, who is your provider? _____
   Are you currently taking antiretroviral (ARV) medications?
   ◻ Yes ◻ No ◻ Don't Know

HCV HISTORY (P)

1. Have you had a previous HCV test:
   ◻ Yes ◻ No ◻ Don't Know
   If yes:
   What was the test result of most recent test? ◻ Positive ◻ Negative ◻ Don't Know
   If positive:
   Date of first positive HCV test (mm/dd/yy): ____/____/_____
   In which state did you first test positive: _____
   Are you currently in care or treatment for HCV?
   ◻ Yes ◻ No ◻ Don't Know
   If yes, who is your provider? _____
   Have you received HCV medications?
   ◻ Yes ◻ No ◻ Don't Know
   If yes, what is the name of the medication? _____

HIV/HCV Testing (P)

1. Rapid HIV test performed? ◻ Yes ◻ No ◻ Don't Know
   If yes, Results? ◻ Positive ◻ Negative
   Date Collected (mm/dd/yy): _____/_____/_____

2. Rapid HCV test performed? ◻ Yes ◻ No ◻ Don't Know
   If yes, Results? ◻ Positive ◻ Negative
   Date Collected (mm/dd/yy): _____/_____/_____

Blood drawn for (check all that apply): ◻ HIV ◻ HCV ◻ HBV
Date Collected (mm/dd/yy): _____/_____/_____

No blood drawn today, will come in on _____/_____/_____ (mm/dd/yy) to have blood drawn

Sexual Behavior History for Suspected HIV/HCV Outbreak
(Please list partners in the last year on the Contact Tracing Form)

First Name: _____ Middle Name: _____ Last Name: _____
Date of Birth (mm/dd/yy): _____/_____/_____ REDCap Patient ID #: _____
Date Completed (mm/dd/yy): _____/_____/_____ Completed By: _____

SEXUAL HISTORY

1. In the past year, have you had sex (vaginal, anal, oral) with (mark all that apply) (P, E, N):
□ Males □ Females □ Transgender Persons □ Refused □ Don't Know/Unknown

2. How many sexual partners have you had in the last year? _____ □ Don't Know/Unknown

3. In the past year, have you exchanged sex for drugs, money, or something else you needed? (P):
□ Yes □ No □ Refused □ Don't Know/Unknown

4. In the past year, have you had sex because you were intoxicated or high?
□ Yes □ No □ Refused □ Don't Know/Unknown

5. In the past year, have you had a sex partner who is HIV positive?
□ Yes □ No □ Refused □ Don't Know/Unknown

6. In the past year, have you had a sex partner who uses injectable drugs?
□ Yes □ No □ Refused □ Don't Know/Unknown

7. (If female) In the past year, have you had a male sex partner who has sex with men?
□ Yes □ No □ Refused □ Don't Know/Unknown

8. In the past year, have you had a sex partner who has had sex with a person who uses injectable drugs?
□ Yes □ No □ Refused □ Don't Know/Unknown

9. In the past year, have you had sex with someone who exchanged sex for drugs, money, or something else you needed?:
□ Yes □ No □ Refused □ Don't Know/Unknown

10. In the past year, have you had sex with someone you didn't know?
□ Yes □ No □ Refused □ Don't Know/Unknown

NOTES

DRAFT

Drug Use, Tattoo, and Incarceration History for Suspected HIV/HCV Outbreak
(Please list partners in the last year on the Contact Tracing Form)

First Name: _____ Middle Name: _____ Last Name: _____
Date of Birth (mm/dd/yy): _____/_____/_____ REDCap Patient ID #: _____
Date Completed (mm/dd/yy): _____/_____/_____ Completed By: _____

DRUG HISTORY

1. Have you smoked illicit drugs (even once): (P, E, N):
□ Yes □ No □ Refused □ Don't Know/Unknown
If yes (check all that apply):
□ Cocaine □ Opioids □ Heroin □ Meth □ Other, please specify: _____

2. Have you snorted illicit drugs (even once): (P, E, N):
□ Yes □ No □ Refused □ Don't Know/Unknown
If yes (check all that apply):
□ Cocaine □ Opioids □ Heroin □ Meth □ Other, please specify: _____

3. Have you injected illicit drugs (even once): (P, E, N):
□ Yes □ No □ Refused □ Don't Know/Unknown
If yes (check all that apply):
□ Cocaine □ Opioids □ Heroin □ Meth □ Other, please specify: _____

4. Have you ever been injected by anyone else (even once):
□ Yes □ No □ Refused □ Don't Know/Unknown

5. Have you ever shared drug equipment (even once):
□ Yes □ No □ Refused □ Don't Know/Unknown

TATTOO HISTORY (N)

1. Do you have a tattoo: □ Yes □ No □ Refused □ Don't Know/Unknown
If yes, where was the tattooing performed (check all that apply):
□ Parlor/Shop □ Correctional Facility □ Don't Know/Unknown
□ Other (please specify:_____) □ Refused

2. Have you shared tattoo equipment with another person?
□ Yes □ No □ Refused □ Don't Know/Unknown

INCARCERATION HISTORY

1. Have you ever been incarcerated? (P, N): □ Yes □ No □ Refused □ Don't Know/Unknown
If yes:
In what type of facility were you incarcerated (N) (check all that apply):
Type: □ Jail □ Prison □ Juvenile Facility □ Don't Know/Unknown

NOTES

Contact Tracing for Suspected HIV/HCV Outbreak

First Name: _____ Middle Name: _____ Last Name: _____
Date of Birth (mm/dd/yy): _____/_____/_____ REDCap Patient ID #: _____
Date Completed (mm/dd/yy): _____/_____/_____ Completed By: _____

PARTNER ELICITATION (P, N)

Name & Nickname	Exposure(s) P1 = sex partner P2 = needle sharing partner P3 = both sex and needles	Duration (specify exposure, start date, frequency, end date)	Phone Number	Address	Email Address	Description

DRAFT

First Name: _____ Middle Name: _____ Last Name: _____
Date of Birth (mm/dd/yy): _____/_____/_____ REDCap Patient ID #: _____
Date Completed (mm/dd/yy): _____/_____/_____ Completed By: _____

PARTNER ELICITATION CONTINUED

Name & Nickname	Exposure(s) P1 = sex partner P2 = needle sharing partner P3 = both sex and needles	Duration (specify exposure, start date, frequency, end date)	Phone Number	Address	Email Address	Description

DRAFT

First Name: _____ Middle Name: _____ Last Name: _____
Date of Birth (mm/dd/yy): _____/_____/_____ REDCap Patient ID #: _____
Date Completed (mm/dd/yy): _____/_____/_____ Completed By: _____

PARTNER ELICITATION CONTINUED

Name & Nickname	Exposure(s) P1 = sex partner P2 = needle sharing partner P3 = both sex and needles	Duration (specify exposure, start date, frequency, end date)	Phone Number	Address	Email Address	Description

First Name: _____ Middle Name: _____ Last Name: _____
Date of Birth: ___/___/_____ REDCap Patient ID #: _____
Date Completed: ___/___/_____ Completed By: _____

PARTNER ELICITATION CONTINUED (Please ask for an additional page if needed.)

Name & Nickname	Exposure(s) P1 = sex partner P2 = needle sharing partner P3 = both sex and needles	Duration (specify exposure, start date, frequency, end date)	Phone Number	Address	Email Address	Description

DRAFT

Non-Partner Contact Tracing for Suspected HIV/HCV Outbreak

First Name: _____ Middle Name: _____ Last Name: _____
Date of Birth (mm/dd/yy): _____/_____/_____ REDCap Patient ID #: _____
Date Completed (mm/dd/yy): _____/_____/_____ Completed By: _____

CLUSTERING

Who else would benefit from testing? Please provide contact information.

DRUG USE & PURCHASING

Where have you used or purchased drugs in the past year? Please be specific.

First Name: _____ Middle Name: _____ Last Name: _____
Date of Birth (mm/dd/yy): _____/_____/_____ REDCap Patient ID #: _____
Date Completed (mm/dd/yy): _____/_____/_____ Completed By: _____

DRUG USE & PURCHASING CONTINUED

Where have people in your area used drugs in the past year? Please be specific.

NOTES

Appendix F – Call Agenda and Situation Report Templates

Call Agenda Template

This document should be completed by SHOC Planning and circulated to all invited parties at least one business day prior to a scheduled call.

HIV/HCV Cluster Investigation Call (REDCap Outbreak #)
Call Date and Time (CST/EST)

- **Roll Call**
- **TDH Lab Updat**e
- **Regional Epi Updates** (see Situation Report for reference)
- **Central Office Updates**
- **Discussion: Strategy for closing this investigation**

Next Call: Call Date and Time (CST/EST)
Call in number: | Passcode:

Contact Info:
Lab

Region(s)

Central Office

Situation Report Template

This document should be completed by regional staff and sent to SHOC Planning at least one business day prior to a scheduled call.

Situation Report
HIV/HCV Cluster Investigation – Region Name
(REDCap Outbreak Investigation #)
Date Updated:

Notification

On XX/XX/XXXX, The Tennessee Department of Health was notified of a possible increase in coinfections among HIV-positive persons in X. Subsequent investigation demonstrated X new HIV diagnoses among IDU who named each other as contacts (IDU). This prompted an investigation and increased surveillance into a possible cluster of HIV/HCV in X.

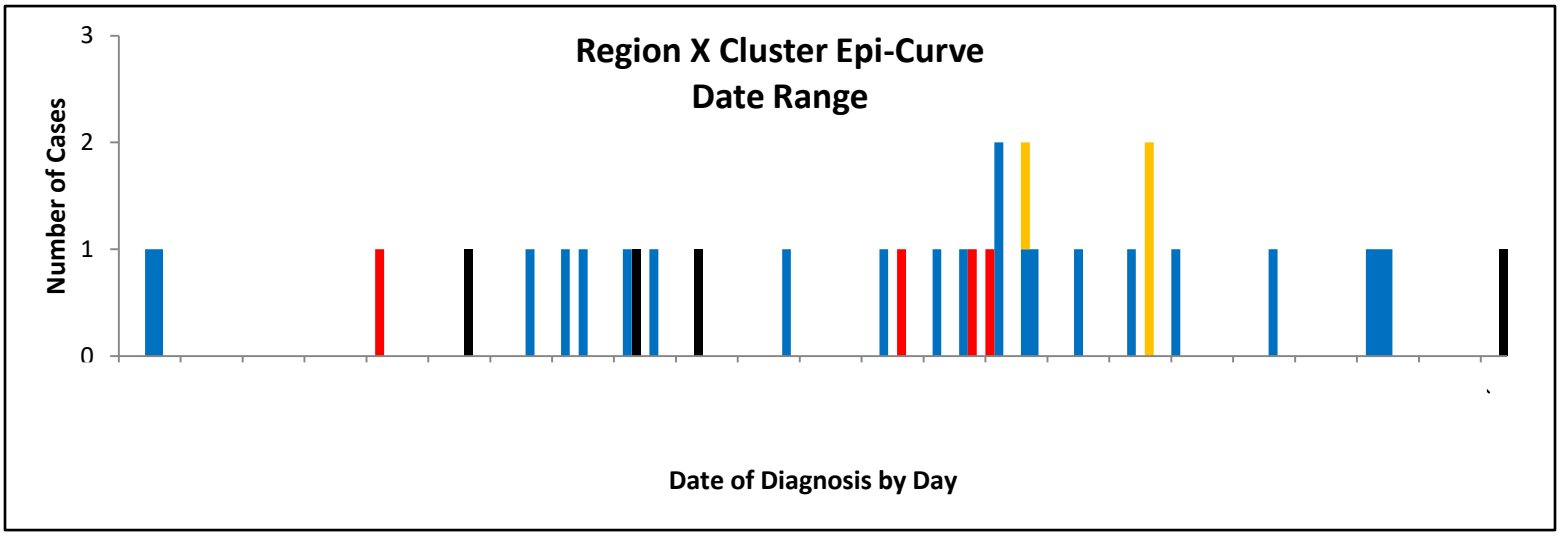
Current Situation *(Table 1)*

	Region X	Total
# cases diagnosed since **[fill in date]**		
# cases interviewed w/ OBRF		
# cases still needing interview with OBRF		
# IDU cases		
# cases interviewed w/ OBRF		
# cases still needing interview with OBRF		
# cases that are IDUs*		
# contacts of IDU* cases		
# contacts of IDU* cases interviewed w/ OBRF		
# contacts of IDU* cases needing interview with OBRF		
# contacts IDU* cases tested for HIV		
# contacts IDU* cases = new HIV+ (cases)		
# contacts IDU* cases = prior HIV+		
# contacts IDU* cases = negative		
# contacts IDU* cases = pending		
# contacts IDU* cases not yet tested for HIV		

*IDU in this table represents IDU + IDU/MSM; Highlighted areas represent priority tasks.

Epidemiology Curve

Note: Red = IDU, Yellow = IDU/MSM, Blue = Other or NIR, Black = Unknown



REDCap Completeness & Laboratory Results *(Table 2)*

Metric	Region X n (%)	Total n (%)
Total **HIV+ Cases**		
Interviewed with OBR Form		
Reported IDU		
Tested for HCV		
Positive		
Negative		
Pending		
Total **Contacts**		
Interviewed with OBR Form		
Reported IDU		
Tested for HIV		
New Positive		
Prior Positive		
Negative		
Pending		
Tested for HCV		
Positive		
Negative		
Pending		

Public Health Action

(Outreach events / messaging / work to find contacts / etc.)

Action Plan

- Train all DIS in phlebotomy
- Train HD staff for pre/post-test HIV counseling
- Investigate harm reduction avenues, non-SEP
- Assure we have Spanish interpreter available
- Update county and city mayors

Cluster Case Definitions

HIV Case Definitions

Confirmed Case:
A person with:

- laboratory confirmed HIV infection, newly diagnosed after [fill in date] (by date of specimen collection) – AND –
- who either resided in Region X OR – was named by another case as a syringe-sharing or sexual partner

Probable Case:

A person with:

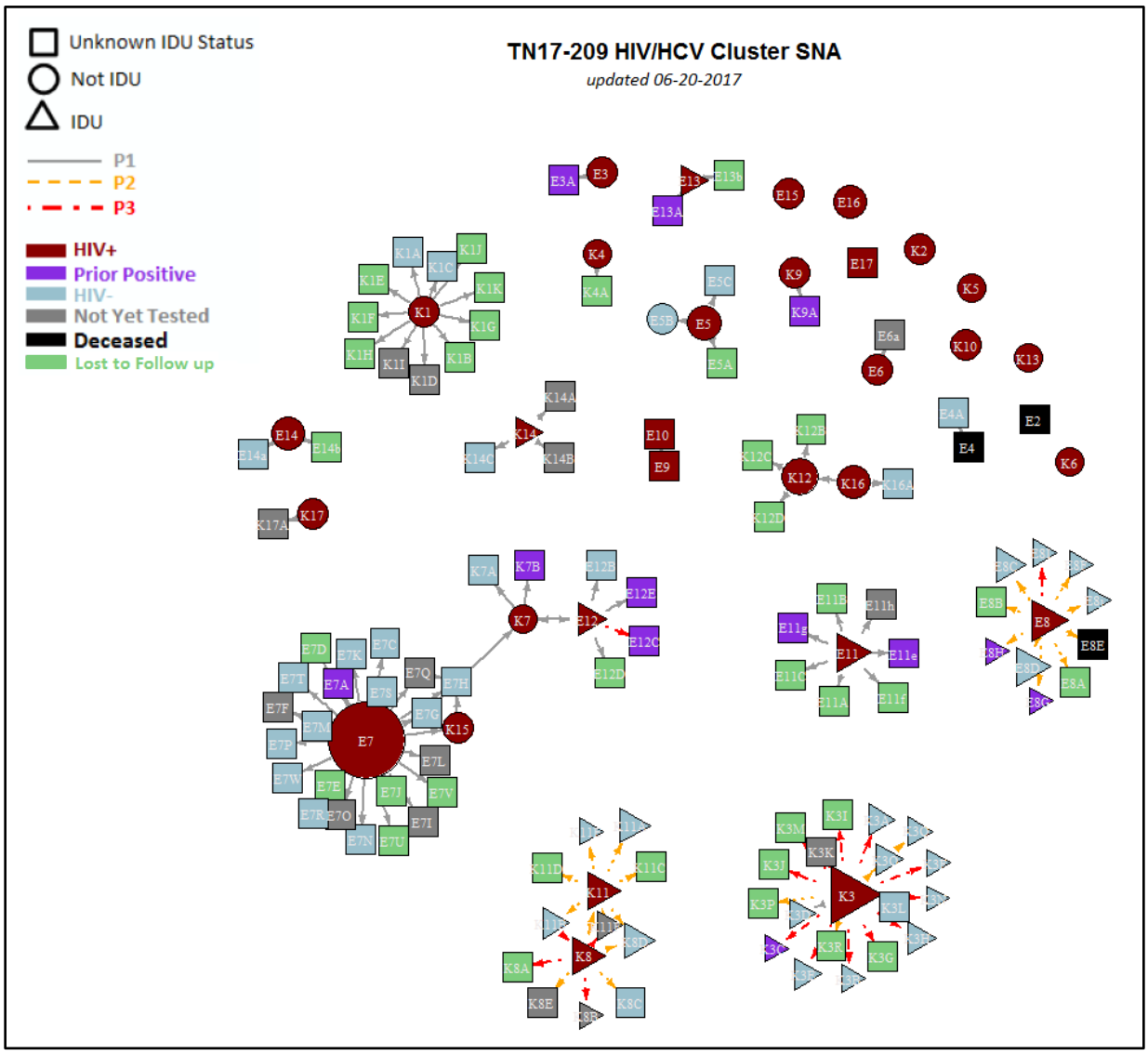
- rapid positive HIV test after [fill in date] (by date of specimen collection) – AND –
- who either resided in Region X– OR – was named by another case as a syringe-sharing or sexual partner

Suspect Case:

A person with:

- signs and symptoms of acute HIV infection (fever, malaise, lymphadenopathy, pharyngitis, headache, night sweats, myalgia or rash) after [fill in date of specimen collection) – AND –
- who either resided in Region X – OR – was named by another case as a syringe-sharing or sexual partner

Social Network Analysis



Appendix G – Additional Resources

CDC HIV Case Definition[8]

Revised Surveillance Case Definition

Section 1: Criteria for a Confirmed Case

Criteria for a confirmed case can be met by either laboratory evidence or clinical evidence, as described below. Laboratory evidence is preferred over clinical evidence.

1.1: Persons Aged ≥18 Months and Children Aged <18 Months whose Mothers were Not Infected

1.1.1: Laboratory Evidence

Laboratory criteria require reporting of the date of the specimen collection for positive test results in multitest algorithms or stand-alone virologic tests and enough information about the tests to determine that they meet any of the following criteria:

- A multitest algorithm consisting of
  - A positive (reactive) result from an initial HIV antibody or combination antigen/antibody test, and
  - An accompanying or subsequent positive result from a supplemental HIV test different from the initial test (*8*).

  The initial HIV antibody or antigen/antibody test and the supplemental HIV test that is used to verify the result from the initial test can be of any type used as an aid to diagnose HIV infection. For surveillance purposes, supplemental tests can include some not approved by the Food and Drug Administration (FDA) for diagnosis (e.g., HIV-1 viral load test, HIV-2 Western blot/immunoblot antibody test, and HIV-2 NAT). However, the initial and supplemental tests must be "orthogonal" (i.e., have different antigenic constituents or use different principles) to minimize the possibility of concurrent nonspecific reactivity. Because the antigenic constituents and test principles are proprietary information that might not be publicly available for some tests, tests will be assumed to be orthogonal if they are of different types. For example:
  - One test is a combination antigen/antibody test and the other an antibody-only test.
  - One test is an antibody test and the other a NAT.
  - One test is a rapid immunoassay (a single-use analytical device that produces results in <30 minutes) and the other a conventional immunoassay.
  - One test is able to differentiate between HIV-1 and HIV-2 antibodies and the other is not.

  Tests also will be assumed to be orthogonal if they are of the same type (e.g., two conventional immunoassays) but made by different manufacturers. The type of HIV antibody test that verifies the initial test might be one formerly used only as an initial test (e.g., conventional or rapid immunoassay, HIV-1/2 type-differentiating immunoassay), or it might be one traditionally used as a supplemental test for confirmation (e.g., Western blot, immunofluorescence assay).
- A positive result of a multitest HIV antibody algorithm from which only the final result was reported, including a single positive result on a test used only as a supplemental test (e.g., HIV Western blot, immunofluorescence assay) or on a test that might be used as either an initial test or a supplemental test (e.g., HIV-1/2 type-differentiating rapid antibody immunoassay) when it might reasonably be assumed to have been used as a supplemental test (e.g., because the algorithm customarily used by the reporting laboratory is known).
- A positive result or report of a detectable quantity (i.e., within the established limits of the laboratory test) from any of the following HIV virologic (i.e., nonantibody) tests:
  - Qualitative HIV NAT (DNA or RNA)
  - Quantitative HIV NAT (viral load assay)
  - HIV-1 p24 antigen test
  - HIV isolation (viral culture) or
  - HIV nucleotide sequence (genotype).

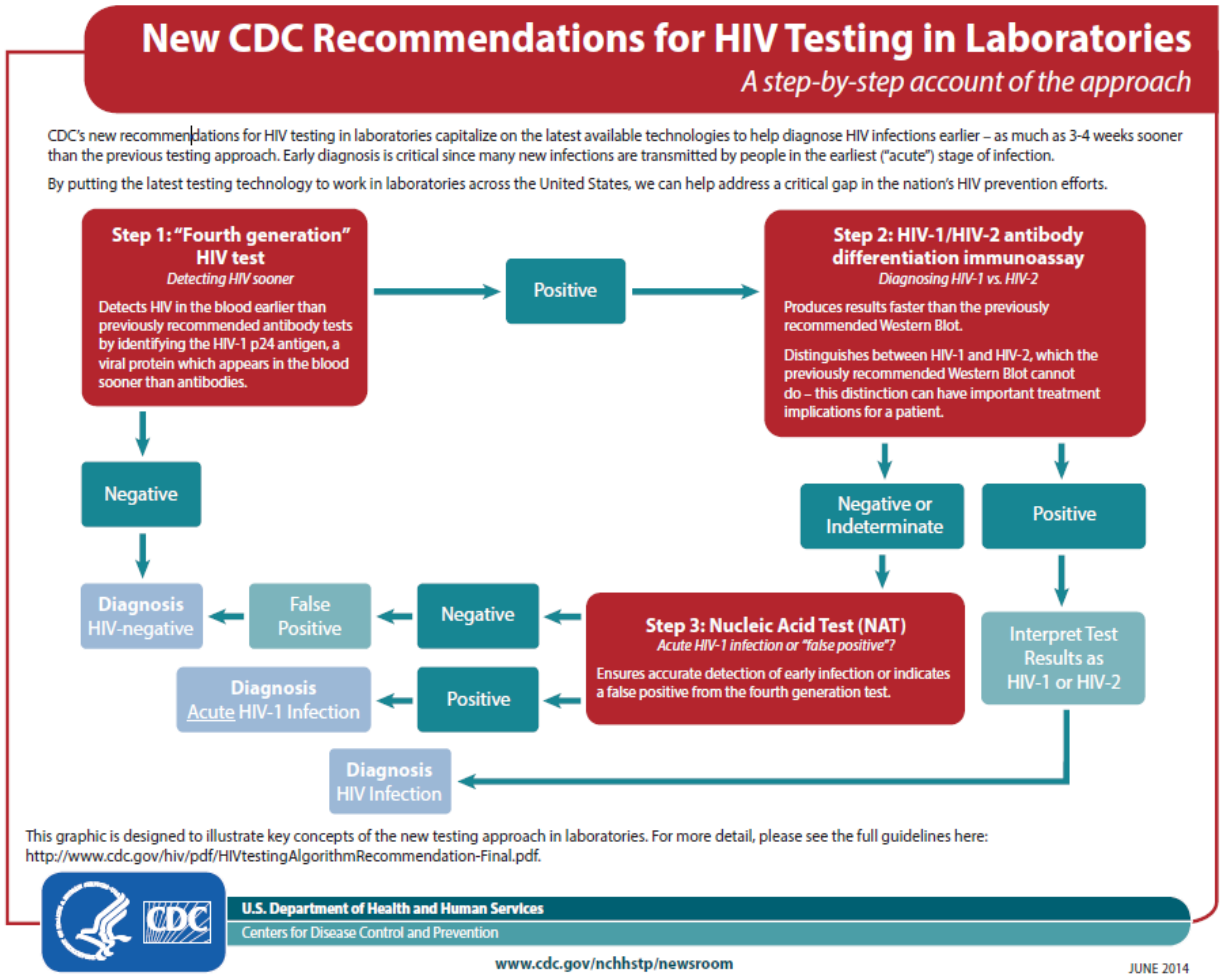
1.1.2: Clinical (Nonlaboratory) Evidence

Clinical criteria for a confirmed case (i.e., a "physician-documented" diagnosis for which the surveillance staff have not found sufficient laboratory evidence described above) are met by the combination of:

- A note in a medical record by a physician or other qualified medical-care provider that states that the patient has HIV infection, and
- One or both of the following:
  - The laboratory criteria for a case were met based on tests done after the physician's note was written (validating the note retrospectively).
  - Presumptive evidence of HIV infection (e.g., receipt of HIV antiretroviral therapy or prophylaxis for an opportunistic infection), an otherwise unexplained low CD4+ T-lymphocyte count, or an otherwise unexplained diagnosis of an opportunistic illness (Appendix).

[8] https://www.cdc.gov/mmwr/pdf/rr/rr6303.pdf

HIV Testing Sequence[9]



[9] https://www.cdc.gov/nchhstp/newsroom/docs/2014/hiv-testing-labs-flowchart.pdf

2016 HCV CDC/CSTE Case Definitions[10]

Clinical Criteria

An illness with discrete onset of any sign or symptom consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, and abdominal pain),
AND

a) jaundice

OR

b) peak elevated serum alanine aminotransferase (ALT) level > 200 IU/L during the period of acute illness.

Laboratory Criteria

- A positive test for antibodies to hepatitis C virus (anti-HCV)
- Hepatitis c virus detection test:
- Nucleic acid test (NAT) for HCV RNA positive (including quantitative, qualitative or genotyping testing)
- A positive test indicating the presence of hepatitis C viral antigen(s) (HCV antigen)*

Case Classification

Acute, confirmed: A case that meets clinical criteria and has a positive hepatitis C virus detection test (HCV NAT or HCV antigen)
OR
A documented negative HCV antibody, HCV antigen or NAT laboratory test result followed within 12 months by a positive result of any of these tests (test conversion)

Acute, probable: A case that meets clinical criteria and has a positive anti-HCV antibody test, but has no reports of a positive HCV NAT or positive HCV antigen tests
AND
Does not have test conversion within 12 months of has no report of test

Chronic, confirmed: A case that does not meet clinical criteria or has no report of clinical criteria
AND
Does not have test conversion within 12 months or has no report of test conversion
AND
Has a positive HCV NAT or HCV antigen test

Chronic, probable: A case that does not meet clinical criteria or has no report of clinical criteria
AND
Does not have test conversion within 12 months or has no report of test conversion
AND

[10] https://wwwn.cdc.gov/nndss/conditions/hepatitis-c-acute/case-definition/2016/

Has a positive anti-HCV antibody test, but no report of a positive HCV NAT or positive HCV antigen test

HCV 2x2 Case Classification Table

Hepatitis C

	Symptom(s) **plus** either a) jaundice or b) ALT >200 IU/L	
	No or Unknown	Yes
HCV Ab(+) only	**Chronic, Probable** ☐	**Acute, Probable** ☐
HCV NAT(+) or HCV Ag(+)	**Chronic, Confirmed** ☐	**Acute, Confirmed** ☐

Acute

- Seroconversion: (-) HCV Ab, HCV Ag, or HCV NAT followed by a (+) of any of these within 12 months (see test conversion table below)= **Acute, Confirmed**

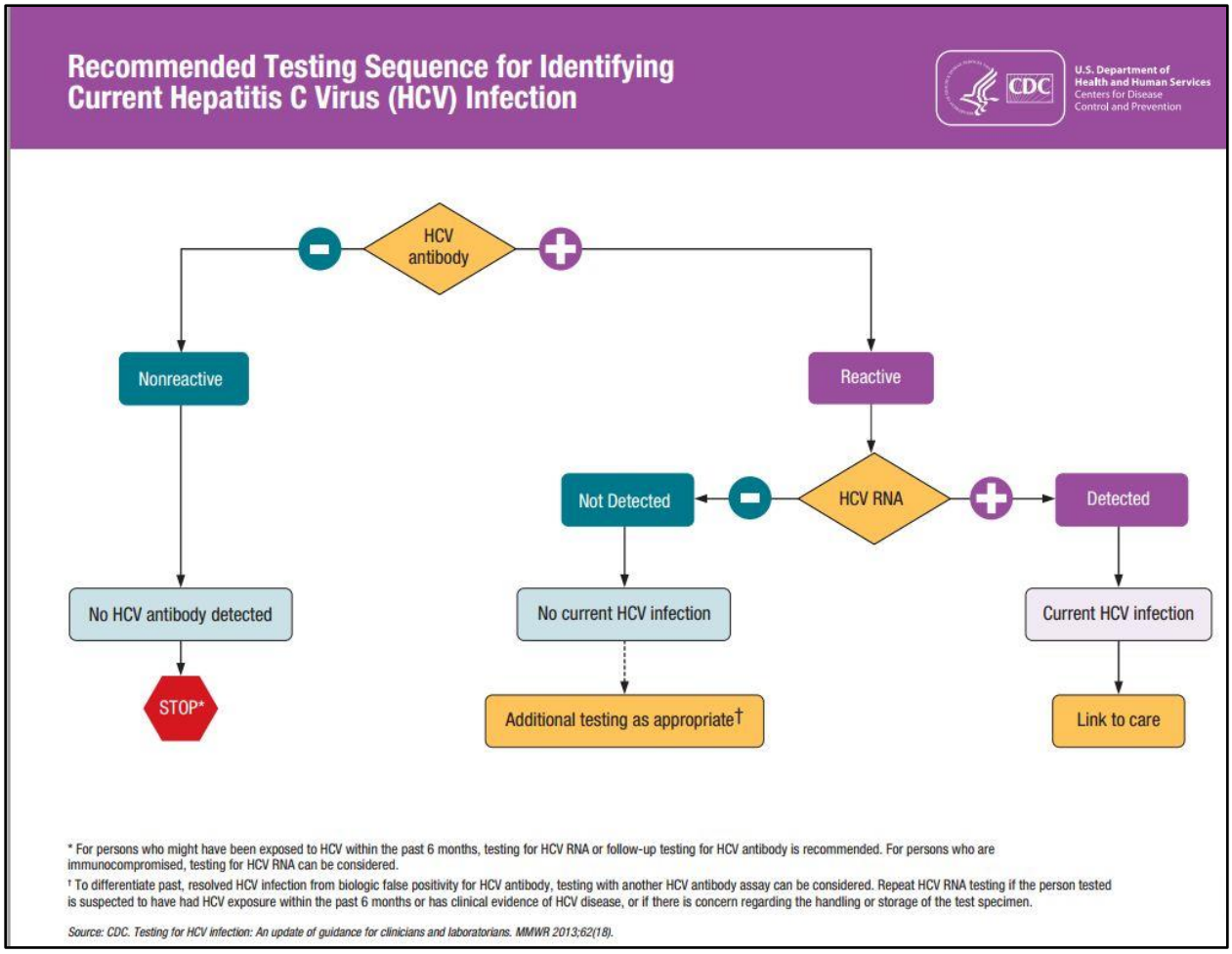
Test Conversion within 12 Months Combinations

First Result	Second Result
(-) HCV Ab	(+) HCV Ab, (+) HCV Ag or (+) HCV NAT
(-) HCV Ag	(+) HCV Ag or (+) HCV NAT
(-) HCV NAT	(+) HCV Ag or (+) HCV NAT

Chronic:

- (+) HCV Ab, (-) RNA, and no other labs on file or the same results previously = **Chronic, Probable**
- (+) HCV Ab, (-) RNA, and prior (+) RNA = **Chronic, Confirmed**
- (-) HCV Ab, standalone **= Chronic, Not a Case**
- (-) HCV RNA, standalone = **Chronic, Not a Case**

HCV Testing Sequence[11]



Screening: Tests for presence of HCV Antibody test (serum).

Confirmatory: Nucleic acid tests that looks for presence of the virus by the presence of viral RNA (quantitative or qualitative). These can include: polymerase chain reaction (PCR), genotyping, or antigen*.

*To date, the HCV antigen test is not available in Tennessee

[11] https://www.cdc.gov/hepatitis/hcv/pdfs/hcv_flow.pdf

HIV Resources

- CDC – HIV Fact Sheets
  http://www.cdc.gov/hiv/library/factsheets/index.html
- CDC - HIV Surveillance Reports
  http://www.cdc.gov/hiv/library/reports/surveillance/

HCV Resources

- GHOST
  http://www.cdc.gov/amd/pdf/factsheets/amd-projects-ghost.pdf
  http://www.cdc.gov/amd/project-summaries/ghost-hep-c.html
- CDC – Viral Hepatitis – Hepatitis C Information
  http://www.cdc.gov/hepatitis/hcv/index.htm
- CDC – Testing Recommendations for Hepatitis C Virus Infection
  http://www.cdc.gov/hepatitis/hcv/guidelinesc.htm
- CDC – Hepatitis C Fact Sheets
  http://www.cdc.gov/hepatitis/hcv/cfaq.htm
- CDC – The ABC's of Hepatitis
  http://www.cdc.gov/hepatitis/Resources/Professionals/PDFs/ABCTable.pdf
- University of Washington - Hepatitis C Online Course
  http://www.hepatitisc.uw.edu/alternate

HIV/HCV Co-Infection Resources

- HIV and Hepatitis – Hepatitis C
  http://www.hivandhepatitis.com/hepatitis-c

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