# Creating a Statewide HCV Treatment Cascade for HIV/HCV Co-Infected Persons Using a Partnership with DPH

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**BACKGROUND:**

- Approximately 25% of those with HIV are coinfected with HCV
- Current treatment cascades focus on HCV mono-infected patients and based on multiple data sources, not surveillance
- Using expanded surveillance capacity and validated HIV matching algorithms, we created an HCV treatment cascade for HIV/HCV coinfected persons in Connecticut

**METHODS:**

Surveillance databases used: CTEDSS (HCV) and eHARS (HIV)

1. eHARS timeframe: HIV Labs from 1/1/2015 to 10/1/2019
2. Two HCV timelines were studied:
   - **Cumulative:** All CTEDSS entries ever recorded (1/1/1994 to 1/1/2020)
   - **Abbreviated:** All CTEDSS entries ever with labs from 1/1/2016 to 1/1/2020.
3. Coinfected lists generated by matching CTEDSS and eHARS
4. HCV treatment cascade status assessed using standardized surveillance case definitions

***Table 1: Disposition definitions using surveillance labs to determine cascade status***

| Disposition | Reported Laboratory Sequence |
|---|---|
| Not Chronic *Positive screen* | • One or more AB positive only result |
| Chronic *Positive screen & Chronic* | • One or more PCR positive only result<br>• AB positive results with one or more sequential PCR positive result |
| SVR *Positive screen, Chronic & SVR* | • AB positive results with one or more sequential PCR positive result, then one or more sequential PCR negative result<br>• One or more PCR positive result then one or more sequential PCR negative result |
| Not Infected (Excluded) | • One or more PCR negative only result<br>• AB positive result with one or more sequential PCR negative result with no PCR positive results |
| Unknown (Excluded) | • non-sequential multiple AB positive, PCR positive, and PCR negative results |

**SUMMARY:**

- Using updated statewide surveillance, the SVR rate was 68.6% (**Figure 1**)
- SVR rates vary between abbreviated and cumulative timeframes (**Figure 4**)
- Contributing factors for improved SVR rates include:
  i. 2016 HCV case definition change (increased HCV PCR testing)
  ii. Enhanced CTEDSS electronic lab interface with ability to recording serial negative PCRs
  iii. Enhanced DAA availability (improved treatment adherence)
  iv. Increase use of reflex PCR testing
- We believe using more updated surveillance data better represents the current coinfected population
- Most likely to achieve SVR: baby boomers & low/undetectable HIV viral loads (**Table 2**)

# It is feasible to create **statewide HCV treatment cascades** for HIV/HCV co-infected individuals using **public health surveillance**

***Figure 1: HCV treatment cascade for HCV/HIV coinfected individuals using abbreviated timeframe***

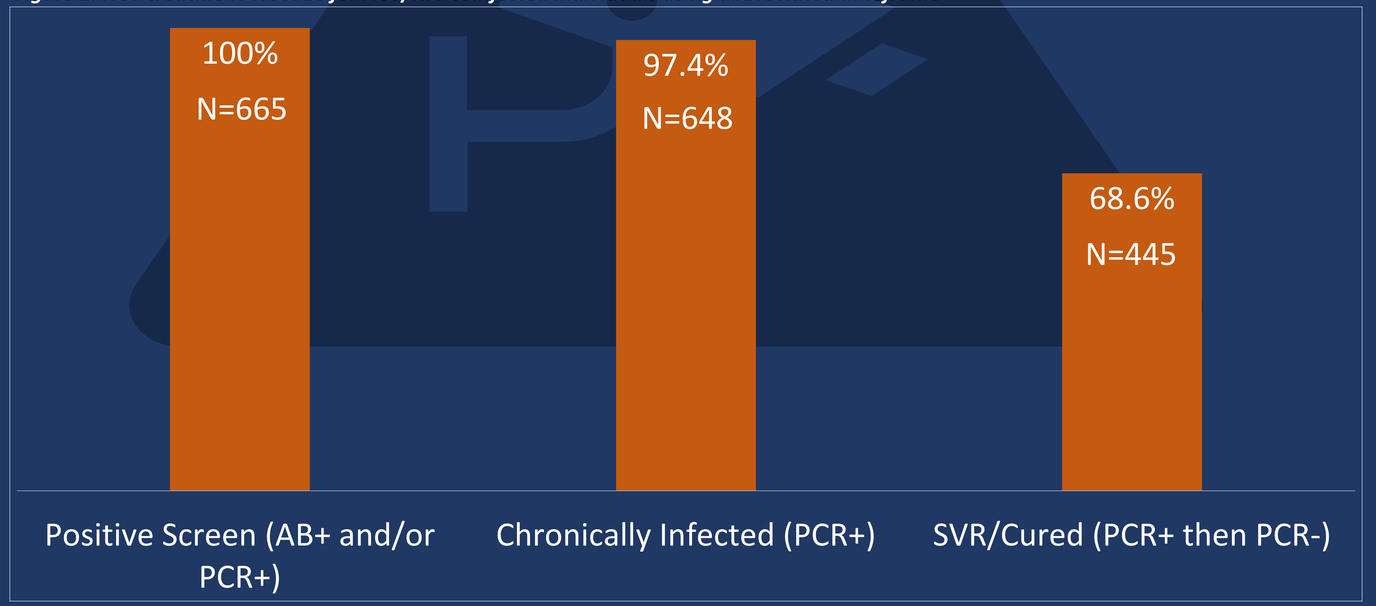


***Figure 2: Data flow along with inclusion/exclusion results for Cumulative treatment cascade timeframe***

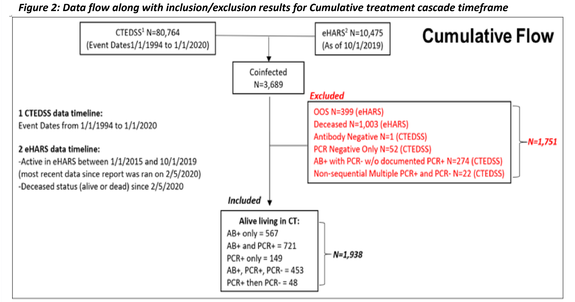


***Figure 3: Data flow along with inclusion/exclusion results for Abbreviated treatment cascade timeframe***

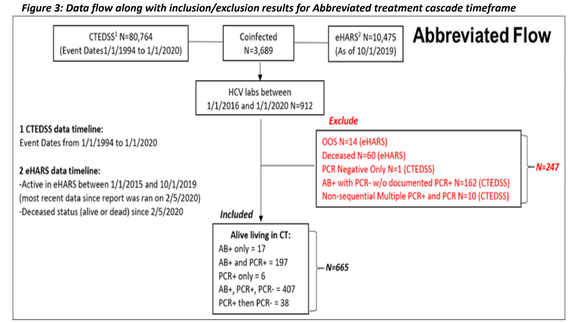


***Figure 4: Comparison of HCV treatment cascade for HCV/HIV coinfected individuals between abbreviated and cumulative timeframes***

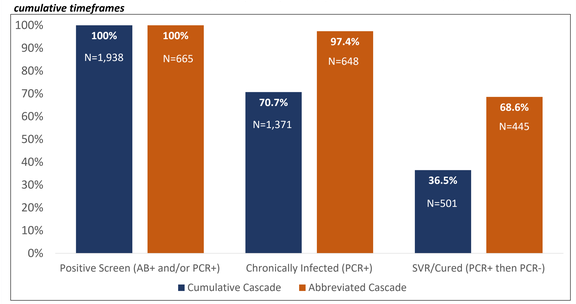


***Table 2: Demographic breakdown and analysis of SVR vs Not SVR for Abbreviated cascade timeframe***

| Variable | Categories | SVR (N=445) | Not SVR (N=220) | $X^2$ p-value | Odds Ratio (95% CI) |
|---|---|---|---|---|---|
| Birth Cohort *(Baby boomer includes 8 cases that are older)* | Baby Boomer | 323 (72.6%) | 125 (56.8%) | <0.0001 | 2.01 (1.4-2.8) |
| | Younger than Baby Boomer | 122 (27.4%) | 95 (43.2%) | | *Ref* |
| Gender | Male | 323 (72.6) | 151 (68.6%) | 0.29 | * |
| | Female | 122 (27.4%) | 69 (31.4%) | | |
| Race/Ethnicity | White | 107 (24%) | 53 (24.1%) | 0.97 | * |
| | Black | 145 (32.6%) | 74 (33.6%) | | |
| | Hispanic | 190 (42.7%) | 91 (41.4%) | | |
| | Other | 3 (0.7%) | 2 (0.9%) | | |
| HIV Transmission Mode | Heterosexual Contact | 43 (9.7%) | 17 (7.7%) | 0.67 | * |
| | MSM | 31 (7%) | 15 (6.8%) | | |
| | MSM and PWID | 18 (4%) | 11 (5%) | | |
| | PWID | 330 (74.1%) | 170 (77.3%) | | |
| | Other/Unknown | 23 (5.2%) | 7 (3.2%) | | |
| HIV Viral Load Level *(SVR N=438, Not SVR N=208)* | High (>10,000) | 10 (2.3%) | 21(10.1%) | <0.0001 | *Ref* |
| | Low (200-10,000) | 21 (4.8%) | 25 (12%) | | 1.76 (0.68-4.56) |
| | Undetectable (<200) | 407 (92.9%) | 162 (77.9%) | | 5.28 (2.43-11.45) |

This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) as part of an award totaling $2,300,000 with no percentage financed with nongovernmental sources. The contents are those of the authors and do not necessarily represent the official views of, nor an endorsement, by HRSA, HHS or the U.S. Government.