

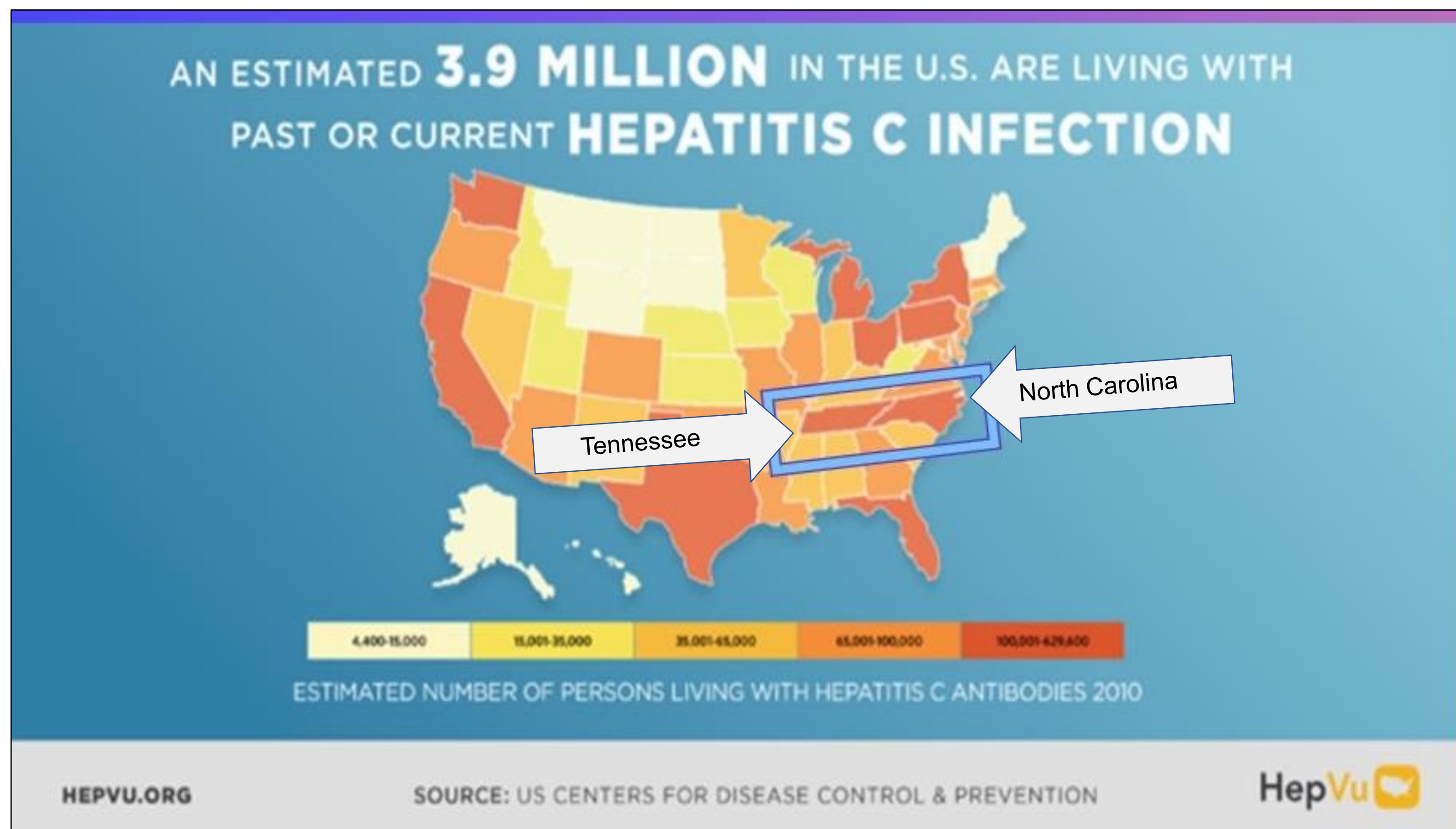
# Diverse Approaches at Southern & Appalachian U.S. Syringe Service Programs Ensure Access To Safer Consumption Supplies & HCV/HIV Testing

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## Introduction & Background

More than 1 million people in the United States have Human Immunodeficiency Syndrome (HIV), while rates of acute and chronic Hepatitis C (HCV) are higher in North Carolina and Tennessee than the national average. People who use drugs (PWUD) are at increased risk of HCV, HIV, and overdose. Appalachian North Carolina and Tennessee were identified by the Centers for Disease Control in 2017 as being at high risk for a dual HCV-HIV outbreak. Many people living with HCV and/or HIV are unaware they are infected. The public health benefits of syringe service programs (SSPs) to reduce spread of HIV and HCV, reduce overdose deaths are well-recognized. SSPs that include a mobile delivery option are particularly effective at increasing access to safer drug consumption supplies and reducing barriers to communicable disease detection and in rural areas. Yet research about safer consumption supply access and other services offered by SSPs in Southern and Appalachian parts of the United States is limited.



## Methods

Using convenience, opportunistic, and purposive sampling, this mixed-methods study combined secondary analysis of program and evaluation data and primary analysis of ethnographic and ongoing evaluation research data from three community organizations that offer syringe services and overdose prevention supplies across North Carolina (NC); in rural Appalachian NC; and, in Appalachian rural and urban Tennessee (TN), within the Southern United States. All offer a range of mobile and/or fixed-site services. Two offer rapid and confirmatory HCV and HIV testing. These varied data sources enabled comparisons of safer drug consumption supply distribution patterns and HCV/HIV testing availability across rural/urban; mobile/fixed-site; NC/TN; and Appalachian/non-Appalachian settings.

## Ethics

Data were received and/or collected for analysis by the first author under a Human Subjects Review protocol that determined the larger study of which this is part exempt from further review.

## Results

SSP data (all 2021)	Rural/ urban (Index of Relative Rurality)	Appalachian/ non-Appalachian	Mobile/ fixed-site	New/ established	Unique participants	Encounters	Syringes distributed	Rural syringe distro	Urban syringe distro	Naloxone kits distributed	Rural nalox distro	Urban nalox distro	Reversals reported	Rural reversals	Urban reversals	HCV/HIV testing at SSP	HCV tests	HCV positives	HIV tests	HIV positives
North Carolina (statewide)	Urban & rural sites	Both	Both	Established	3,504	10,842	1,643,002	373,880	1,269,122	15,070	2,684	12,386	1,845	130	1,715	Yes, in 7 counties (4 urban; 3 rural)	190	Rapid: 102 Confirm.: 4	184	0
East Tennessee	Urban site & rural site	Yes	Fixed-site	Established	3,915	21,031	1,153,255	225,427	927,828	30,025	5,977	24,048	3,442	613	2,829	Yes, in 2 counties (1 urban; 1 rural)	Rapid: 170 Confirm.: 2	Rapid: 70 Confirm.: 2	351	6
Western North Carolina (TN border)	Rural	Yes	Mobile	New	40	95	23,000	23,000	n/a	157	157	n/a	12	12	0	No	n/a	n/a*	n/a	n/a

In 2021 a well-established statewide North Carolina (U.S.) SSP offering both mobile and fixed-site services in both rural and urban settings, and offering HCV/HIV testing in both venues, had the greatest capacity to provide PWUD with safer drug consumption supplies (1,643,002 syringes distributed) and overdose death prevention supplies (15,070 naloxone kits distributed) and to perform testing (190 HCV tests; 184 HIV tests). This represented 10,842 encounters with 3,504 unique participants. (*distribution average: ~469 syringes/participant; ~4 naloxone kits/participant*).

A similarly well-established East Tennessee (U.S.) SSP that offered services at fixed-site locations in one urban and one rural county, and also offered on-site HCV/HIV testing, likewise demonstrated considerable capacity for provision of supplies (1,153,255 syringes; 30,025 naloxone kits) and for HCV testing (172 HCV tests) and even greater capacity for HIV testing (351 HIV tests). This represented 21,031 encounters with 3,915 unique participants. (*distribution average: ~295 syringes/participant; ~8 naloxone kits/participant*).

A recently established and smaller SSP in Western North Carolina (U.S.) that at the time offered only mobile, delivery-based services in a rural area nevertheless distributed a large number of safer consumption and overdose death prevention supplies for the number of unique participants at that time (23,000 syringes & 157 naloxone kits distributed). This represented 95 encounters with 40 unique participants. (The Western North Carolina SSP did not, at the time, offer HCV/HIV testing.) (*distribution average: ~575 syringes/participant; ~4 naloxone kits/participant*).

## Discussion

The statewide NC program with both mobile and fixed-site locations in both rural and urban settings, offering HCV/HIV testing in both settings, had the greatest reach with the most diverse array of services and programming offered across the most settings. The East Tennessee SSP, though serving just one urban and one rural county, nevertheless distributed almost 2/3 the number of syringes and twice as many naloxone kits than did the statewide NC program. Both larger programs were able to offer similar numbers of HCV tests; the East Tennessee program (which is based at an AIDS service organization) administered almost twice as many HIV tests than did the NC statewide program. The nascent Western North Carolina SSP, bordering East Tennessee and only recently founded when the data reflected here were collected, nevertheless distributed more syringes per participant than did either of the larger, more-established programs, and as many naloxone kits per participant as did the East Tennessee SSP – while operating solely in a rural area. This program model relied in part on secondary, peer distribution, with many participants receiving greater numbers of supplies to distribute on to other PWUD in the area. The greater syringe coverage suggested by the smaller, mobile program's distribution averages is consistent with existing literature on the potential for mobile and secondary distribution to achieve greater coverage and reach in rural areas.

## Conclusion & Recommendations

Across a range of settings in U.S. Southern and Appalachian contexts, a diversity of approaches to safer drug consumption supply distribution and HCV/HIV testing appeared to maximize access for PWUD. Consistent with existing literature, the combination of mobile distribution and fixed-site SSP locations, as well as including distribution in rural settings and supporting secondary distribution, all may be key to increasing access to evidence-based overdose prevention and communicable disease responses for a wider range of underserved PWUD. These promising combined approaches are worthy of greater research focus and local investment, particularly in structurally marginalized regions affected by intersecting policy, economic, social, geographic, and other risk factors for dual HCV and HIV outbreaks and disproportionate overdose rates.

## References

Centers for Disease Control, 2010, HepVu map.  
 Harless, Chase, Brunilda Lugo, and Bayla Ostrach. "Hepatitis C and HIV Screening, Testing, and Risk Perceptions among South-Central Appalachian County Health Department Staff." *Southern Medical Journal* 115, no. 7 (2022): 422–28.  
 Kranz, Amy, Rebecca Grandy, Bayla Ostrach, Brian Antono, Troy Jackson, Chase Harless, Lauren Payne, and Harris Middlesworth. "Time to Treat" - Critical Review of Literature on Hepatitis C Treatment in Active Substance Use." Critical Lit. Review & Synthesis presented at the Substance Use Disorders Task Force, Mountain Area Health Education Center, November 9, 2018.  
 Ostrach, Bayla, Lesly-Marie Buer, Sam Armbruster, Hillary Brown, Gariann Yoachim, and Nickolas Zaller. "COVID-19 and Rural Harm Reduction Challenges in the US Southern Mountains." *The Journal of Rural Health: Official Journal of the American Rural Health Association and the National Rural Health Care Association* 37, no. 1 (January 2021): 252–55. <https://doi.org/10.1111/jrh.12499>.  
 Strike, Carol, and Miroslav Miskovic. "Scoping out the Literature on Mobile Needle and Syringe Programs—Review of Service Delivery and Client Characteristics, Operation, Utilization, Referrals, and Impact." *Harm Reduction Journal* 15, no. 1 (February 8, 2018): 6. <https://doi.org/10.1186/s12954-018-0212-3>.  
 Strike, Carol J., Laurel Challacombe, Ted Myers, and Margaret Millson. "Needle Exchange Programs: Delivery and Access Issues." *Canadian Journal of Public Health/Revue Canadienne de Sante'e Publique*, 2002, 339–43.  
 Van Handel, MM, Charles E. Rose, Elaine J. Hallisey, Jessica L. Kolling, Jon E. Zibbell, Brian Lewis, Michele K. Bohm, Christopher M. Jones, Barry E. Flanagan, and Azfar-E. Siddiqi. "County-Level Vulnerability Assessment for Rapid Dissemination of HIV or HCV Infections Among Persons Who Inject Drugs, United States." *Journal of Acquired Immune Deficiency Syndromes* (1999) 73, no. 3 (2016): 323–31.