

Human Immunodeficiency Virus Telehealth Collaborative Care Program (HIV TCC)

EXECUTIVE SUMMARY

Human immunodeficiency virus (HIV) is a blood borne pathogen that invades the immune system by targeting and destroying white blood cells (CD4+ lymphocytes) that normally protect the body from opportunistic infection, cancer, and inflammation that cause cardiovascular disease such as stroke and heart disease.¹ There is no vaccine and no readily available cure for HIV, and affected individuals must remain linked to medical care with continuous renewal of life sustaining anti-retroviral medication by trained medical providers or risk progression to severe disease, called acquired immune deficiency syndrome (AIDS).^{1,2} In the United States, death from AIDS was the leading cause of mortality in young adults ages 25 to 44 years old in 1995.³ Currently, youth and young adults aged 13-34 years still account for more than half (56%) of all people newly diagnosed with HIV in 2021 in the U.S.⁴ The U.S. has approximately 1.09 million individuals living with HIV with 36,126 new HIV diagnoses in 2021, of which additionally, an estimated 1 in 7 have yet to be diagnosed.⁴

The Veterans Health Administration (VHA) since the inception of the U.S. HIV epidemic in the 1980s has deployed sustainable antiretroviral therapy on a national scale and now is the largest, single provider of HIV care in the United States with 31,726 total unique Veterans living with HIV in VHA care in FY23, of which 5,934 Veterans were rural (18%).⁵ In part to its nationally coordinated care model with a sustainable formulary and laboratory infrastructure contributing to excellent health outcomes as compared to the

community, the VHA is also the largest geriatric provider of HIV care in the United States, with approximately 23,944 (77%) of Veterans in care greater or equal to age 50 years.⁵

However, for rural Veteran populations, access to life saving HIV specialty care can be difficult, especially with combined with military service related disability and increased comorbidities of aging. In an effort to increase the accessibility and comprehensiveness of care for rural Veterans with HIV, the VA Office of Rural Health (ORH) funded a pilot telehealth collaborative care program that was developed and tested by its Veterans Rural Health Resource Center (VRHRC) in Iowa City, Iowa in 2013.^{6,7,8} Telehealth collaboration connects fragmented networks of primary and specialty care providers through which local primary care teams in rural areas work with HIV specialists at the centrally located hub to provide "shared care" for rural veterans with HIV. Patients attend their videoconferencing sessions at the nearest VA community-based outpatient clinic (CBOC) and receive care from HIV specialty care teams located at the main VA facility. Patients can also complete VA video connect visits in the privacy of their own homes or a secure office space.

Services include maintaining HIV care and ensuring associated care metrics as coordinated with the primary care provider. While primary care providers focus on management of blood pressure, diabetes, high cholesterol, and tobacco smoking cessation, the ID specialist assists in checking bone density and renal function and ensuring often complex immunization

schedules are up to date. Clinical video telehealth allows for more coordination between distant HIV specialists and local primary care teams with a joint care model. A site based central nurse care navigator helps Veterans navigate the shared-care model and access key auxiliary VHA services such as support for housing, mental health, pain control, or substance use treatment.^{6,7,8,9}

New services in this telehealth platform model for HIV prevention (called HIV pre-exposure prophylaxis, or PrEP) was deployed in 2020 during the COVID pandemic to reach Veteran populations at risk; this program used innovative asynchronous pre-visit laboratory visits to obtain HIV and sexually transmitted infection screening prior to a videoconference with a specialty provider for joint decision making. Services deployed in 2022 on this platform were more comprehensive sexually transmitted infection (STI) screening in HIV care as well as more integrated services with primary care for STI treatment and prevention within HIV care. In 2024, the Tampa VA coordinating center added on a harm reduction model with cooperation with other national VHA program offices (HIV, Hepatitis, and Related Conditions Program and Office of Mental Health and Suicide Prevention) to deploy harm reduction education and interventions to Veterans at risk being seen via telehealth for HIV treatment and prevention.

This VA program initially linked specialty clinicians in Iowa City with VA Community Based Outpatient Clinics (CBOCs) that serve Veterans in rural areas. This pilot program indicates that the telehealth collaborative model maintained high-quality care and was well accepted by Veterans and primary care providers. The pilot study showed reduced patient travel time and potential for improving care of comorbid conditions, thus making it a Rural Promising Practice.

The ORH HIV TCC program technological infrastructure existing strong medical team relationships with patient panels played a key role in linkage to care and vaccine deployment during the 2020 Covid pandemic and the 2022 mpox (monkeypox) outbreak, linking Veterans with immunosuppression to needed vaccines in rapid time.

Present day, HIV TCC continues to expand yearly to 1-3 sites per fiscal year and now serves Veterans at 21 sites, the most recent of which is located at the VA Pacific Islands Health Care System for patients who reside on

rural Hawaii and insular island US territories (American Samoa, Guam, CNMI) and includes traditionally underrecognized rural Veterans of Native American and Pacific Islander origin.

Who Can Use This Rural Promising Practice?

VHA HIV and ID specialists who treat patients from rural areas, as well as leadership in rural health systems, can adopt this Rural Promising Practice. Community care providers and Ryan White providers also can utilize these principals both nationally and internationally as this model facilitates care to Veterans using a navigation and shared care model. At inception, this program created a comorbid disease registry and now utilizes VHA program level data directly from VHA's corporate data warehouse to track:

- Retention in care (defined as a visit every 6-12 months)
- HIV viral load and CD4+count laboratory values; and,
- Coordination with primary care providers for blood pressure, lipid management, bone density monitoring, and referral for cancer screening anal cytology

IMPLEMENTATION

Site Selection (Initial)

Prospective participating VHA facility sites are selected through an interview and application process by the coordinating site and evaluated based on percentage of rurality as well as interest and need to establish and/or greatly improve telehealth outreach services for HIV and HIV prevention.

First Phase: Pre-implementation (6-12 months)

Newly selected site lead provider (usually a board-certified infectious disease physician), clinical RN or APRN navigator, ID Pharm D, and with coordination with facility telehealth provider conduct outreach to CBOCs or local clinics to develop goals and share knowledge and to identify best implementation strategies for telehealth platforms. HIV and local primary care teams meet at least once in person and then have ongoing coordination of care through the virtual modality and as needed. Telehealth Service Agreements (TSAs) are implemented with CBOC teams



and if needed, e-pass or WebVRam services are deployed for remote access to satellite facilities.

Care coordination teams use data to care models to identify Veterans living with HIV or at risk for HIV, and these Veterans are actively contacted to be linked to care and evaluation. Veterans may elect to continue to travel to the VA HIV specialty clinic for all care if they prefer, but a majority opt for telehealth care. To address concerns regarding privacy and stigma surrounding HIV, physicians briefed Veterans about processes and personnel involved with the telehealth collaborative model. Finally, coordinators conducted a program readiness assessment to ensure that systems groundwork was in place, including telehealth equipment and health registry capabilities.

Second Phase: Implementation (12-24 months)

Implementation occurs in stages, with groups of CBOCs implementing every few months to allow for learning and course correction. Using telehealth and the patient registry to facilitate contact and access to care, HIV clinicians manage retention in care, HIV viral loads, and screening and/or vaccinations for comorbid conditions like hepatitis B and C, mpox (monkeypox), RSV, meningitis ACWY and B, COVID vaccination, and influenza vaccination including pneumonia vaccination. Primary care teams manage cardiovascular risk factors blood pressure, lipids, sugar levels, tobacco cessation that increasingly claim more lives than HIV-related factors.

During implementation, telehealth collaborative care visits begin. These include:

1. Identification of Veterans needed relinkage to care for HIV
2. Clinical video telehealth or VA Video Connect visits with the HIV specialty team (provider, nurse, pharmacist); and,
3. Follow-up interventions such as STI screening or harm reduction services

Population management relies on a registry that tracks all Veterans in care for HIV across care sites, and automatically pulls data from the VA corporate data warehouse on retention in care, HIV viral loads, and CD4+ lymphocytes. On a quarterly basis, the nurse care manager or pharmacist in the HIV specialty clinic will query the registry to identify Veterans at risk for poor outcomes. The nurse care manager conducts outreach accordingly to keep patients engaged through either

HIV telehealth visits or in-person visits with local care teams. Follow-up plans are documented and coordinated using structured shared-care notes in the Computerized Patient Record System, which is the electronic health record system utilized by VA.

When Veterans have concerns, questions, or care needs, they contact the central nurse or advanced practice care manager, who then creates a detailed follow-up plan and documents this in the shared record.

Sustainment (12 months)

Assessments of the first year of program implementation are essential to build trust in the telehealth collaborative model. The evaluation may include semi-structured interviews with all stakeholders in telehealth collaborative care: HIV specialty team members, CBOC care team members, telehealth coordinators, facility telehealth coordinators, VISN representatives, and primary care leadership. Another component of the assessment may include quality measures regarding HIV care and cardiovascular risk factor management.

PROMISING RESULTS

The pilot program began at the Iowa City VA Medical Center and since has expanded to 21 sites, and additional non-funded but mentored sites through monthly community of practice calls. Although this pilot in telehealth collaborative care has not been subjected to large, randomized trials, several features make it a Rural Promising Practice.

Improved Access: Data from the pilot and elsewhere indicate objective improvements in Veteran travel time and visit completion rates, as well as improved care coordination between primary and specialty care team.

Demonstration of Need and Evidence of Impact: The pilot data show positive clinical impacts on processes of care for comorbidities, without compromising quality measures for HIV care. Nearly all participating Veterans (96%) maintained an undetectable viral load after the transition to telehealth HIV specialty care visits. The pilot also suggested improvement in comorbid conditions: tobacco cessation improved from 29% prior to telehealth collaborative care, to 100% during the pilot.



This indicates the model's potential for improving cardiovascular risk factor management.

Customer/Patient Satisfaction: Veteran satisfaction with telehealth collaborative care is high, evidenced by care satisfaction surveys as well as high and sustained participation rates. In the pilot study, 41 of 43 eligible Veterans (95%) chose telehealth collaborative care over traveling to the HIV clinic for care. Results suggest that the telehealth pilot was associated with reduced travel time for Veterans, without compromising the existing high quality of HIV care. Time saved measured more than two hours for median pilot participants. All Veterans in the pilot were retained in care and remained on ART.

Operational Feasibility: Prior studies suggest that long-term operational feasibility is supportable. With its well-developed telehealth infrastructure, integrated electronic health records and data warehouses, VA is an ideal setting for the development and refinement of this program. In addition, the program also shows promise for future application outside VA. As health care reform advances in the United States, health care systems and Accountable Care Organizations will increasingly develop telehealth programs, interoperable electronic health records and regional data warehouses. This will set the stage for dissemination of this Rural Promising Practice outside VA, allowing for community health systems to contribute to lesson integrated system. This aligns with substantial external evidence that supports the use of clinical video telehealth to care for chronic illnesses, including HIV.

Strong Partnerships and/or Working Relationships: This model encourages and formalizes relationships between HIV specialists, often at urban hubs, and general practitioners at local sites of care. It also has contributed to cross collaborations and innovations with other National VHA program offices.

CONCLUSION AND NEXT STEPS

Telehealth collaborative care is shown as feasible, efficient, and effective, and this model can help safely meet the care needs of the aging population of rural Veterans with HIV infection. Future work should focus on disseminating this model of care in rural and remote areas inside and beyond the VA network. Additional attention may be paid to developing strategies to promote telehealth collaborative care

dissemination and on identifying the budget impact and business case for telehealth collaborative care. This can be accomplished through hybrid implementation effectiveness studies that test expansion of telehealth collaborative care in facilities caring for geographically dispersed populations of Veterans with HIV.^{10,11,12}

SUBJECT MATTER EXPERTS

Dr. Jamie Morano, MD, MPH, FACP, FIDSA, National Project Lead, ORH HIV TCC Program at the Veterans Rural Health Resource Center – VA Office of Rural Health, Iowa City, IA; Professor of Infectious Diseases and Internal Medicine, University of South Florida, Morsani College of Medicine, Tampa, FL; Director, Infectious Disease Telehealth and Outpatient Program, James A Haley VA, Tampa, FL; Field Advisory Board, VHA HIV, Hepatitis, and Related Conditions Program.
Jamie.Morano@va.gov

Dr. Michael Ohl, MD MSPH; Iowa City VA Healthcare System, Veterans Rural Health Resource Center— Central Region, VA Office of Rural Health, Iowa City, Iowa; The Comprehensive Access and Delivery Research and Evaluation Center at the Iowa City VA Healthcare System, Iowa City, Iowa; Division of Infectious Diseases and General Internal Medicine, Department of Internal Medicine, University of Iowa Carver College of Medicine, Iowa City, Iowa. Michael.ohl@va.gov

Peter Kaboli MD, MS, Executive Director, VHA Office of Rural Health, Veterans Health Administration, Washington, D.C.

To cite this Rural Promising Practice: Morano J, Solimeo S, Boyles S, Ohl, M., and Kaboli, P. (2024). Telehealth Collaborative Care for Rural Veterans with HIV Infection. U.S. Department of Veterans Affairs Office of Rural Health Rural Promising Practices.

FUNDING

Funding provided by the U.S. Department of Veterans Affairs (VA) Office of Rural Health.

Visit www.ruralhealth.va.gov to learn more.



REFERENCES

- ¹ Bekker et al. HIV infection. Nature Reviews Disease Primers. August 17, 2023; 9(23).
- ² Landovitz et al. Prevention, Treatment, and Cure of HIV infection. Nature Reviewed Microbiology. 2023. 657-670.
- ³ Murphy M, Nall R, Williams A. The History of HIV and AIDS in the United States. October 12, 2021. Available online at: [History of HIV and AIDS: 1981-2021, Statistics, and More \(healthline.com\)](https://www.healthline.com/health/hiv-and-aids-1981-2021-statistics-and-more)
- ⁴ HIV Surveillance Report 2023. CDC, Diagnoses of HIV Infection in the US and Dependent Areas, 2021. Available at: [Volume 34 | HIV Surveillance | Reports | Resource Library | HIV/AIDS | CDC](https://www.cdc.gov/hiv/surveillance/reports-resources/volume-34-hiv-surveillance-reports-resource-library-hiv/aids-cdc/), accessed May 10 2024.
- ⁵ Veterans Health Affairs, VSSC Data HIV Cube, accessed May 10 2024
- ⁶ Ohl ME, Dillon D, Moeckli J, Ono S., Waterbury N., Sissel J., Yin J., Neil B., Wakefield B., Kaboli P. Mixed- methods evaluation of a telehealth collaborative care program for persons with HIV infection in a rural setting. J Gen Intern Med. 2013 Sep;28(9):1165-73. PMID: 23475640
- ⁷ Ohl ME, Richardson K, Rodriguez-Barradas MC, Bedimo R, Marconi V, Morano JP, Jones MP, Vaughan-Sarrazin M. Impact of availability of telehealth programs on documented HIV viral suppression. A cluster-randomized program evaluation in Veterans Health Administration. Open Forum Infectious Disease, 2019 May 10;6(6). PMID
- ⁸ Ohl ME, Richardson K, Kaboli PJ, Perencevich E, Vaughan-Sarrazin M. Geographic access and use of infectious diseases specialty and general primary care services by Veterans with HIV infection: Implications for telehealth and shared care programs. J Rural Health. 2014 Sep;30(4):412-21. PMID: 31211155
- ⁹ Morano JP, Ohl ME. VA Telehealth Best Practices, ID Week Conference (Infectious Disease Society of America), October 2019, Washington, DC.
- ¹⁰ Dima D, Grant G, Montgomery, M et al. Characteristics, Comorbidities, and Outcomes in a multicenter registry of patients with HIV and Coronavirus Disease-19. Clinical Infectious Disease. 2020 Sept 9. PMID: 32905581.
- ¹¹ Hubach RD, O'Neil AM, Stowe M, Hamrick J, Giano Z, Currin JM. Preferred Methods of HIV and Sexually Transmissible Infection Screening Delivery Among a Rural Sample of Men Who Have Sex with Men. AIDS Patient Care STDS. 2020 Nov;34(11):470-476. PMID: 33147083
- ¹² Kalichman SC, Katner H, Eaton LA, Banas E, Hill M, Kalichman MO. Comparative effects of telephone versus in-office behavioral counseling to improve HIV treatment outcomes among people living with HIV in a rural setting. Transl Behav Med. 2020 Nov 17. Online ahead of print. PMID: 33200772

ADDENDUM

ORH HIV TELEHEALTH COLLABORATIVE CARE (HIV TCC) PROGRAM FY 23 IMPACT REPORT											
VISN	Station	Facility Name	FY Implemented	Current status	Unique Rural Veterans Living with HIV FY22	Unique Urban Veterans Served Living with HIV FY22	Total HIV Encounters VVC FY 23	Total HIV Encounters CVT FY 23	Total HIV Encounters Telephone FY 23	Total HIV Telehealth Visits FY 23 (Rural)	Unique Veterans Served for PrEP FY 23
23	636A8	Iowa City VA Medical Center, IA	2015-2019	Sustaining	35	52	17	22	33	72	36
17	671	Audie L Murphy Memorial Veterans' Hospital, San Antonio, TX	2015-2016	Sustaining	69	400	123	5	209	337	148
17	549	Dallas VA Medical Center, TX	2015-2018	Sustaining	137	730	151	5	246	402	146
7	508	Atlanta VA Medical Center, GA	2015-2018	Sustaining	117	1484	735	1	107	843	224
10	583	Richard L Roudebush VA Medical Center, Indianapolis, IN	2016-2018	Sustaining	42	209	5	2	4	11	50
16	580	Michael E. DeBakey VA Medical Center, Houston, TX	2015-2018	Sustaining	128	832	83	2	489	574	214
1	402	Togus VA Medical Center, ME	2019-2021	Sustaining	50	22	2	7	12	21	30
9	614	Memphis VA Medical Center, TN	2020-2023	Sustaining	62	229	452	214	215	881	29
10	552	Dayton VA Medical Center, OH	2016-2019	Sustaining	28	113	76	19	49	144	29
15	657	St. Louis VA Medical Center, MO	2020-2021	Sustaining	41	202	4	1	40	45	64
16	586	G.V. (Sonny) Montgomery VA Medical Center,	2018-2021	Sustaining	119	89	20	39	79	138	27
16	629	New Orleans VA Medical Center, LA	2019-2022	Sustaining;	44	337	40	5	47	92	71
20	663	VA Puget Sound Medical Center, Seattle WA	2019-2022	Sustaining	3	294	122	1	66	189	238
20	648	Portland VA Medical Center, OR	2019-2022	Sustaining	79	261	74	1	147	222	174
22	691	West Los Angeles VA Medical Center, CA	2019 -2022	Sustaining	19	574	33	4	242	279	239
6	558	Durham VA Medical Center, NC	2018-2019	Technical Support only	171	288	32	1	178	211	79
22	644	Carl T Hayden VA Medical Center, Phoenix, AZ	2019-2022 mentorship; funded 2022-	Active	61	362	46	1	175	222	128
8	673	James A Haley VA Medical Center, Tampa, FL	2018-	Active	23	522	258	110	80	448	128
21	459	VA Pacific Islands Health Care, Honolulu, HI	2023-	Active	37	73	33	8	37	78	47
22	644	Carl T Hayden VA Medical Center, Phoenix, AZ	2019-2022 mentorship; funded 2022-	Active	61	362	46	1	175	222	128
23	618	Minneapolis VA Health Care System, MN	2023-	Active	34	141	36	9	54	99	96
7	619	Central Alabama VA Medical Center, Montgomery, AL	2020-2021 mentorship; funded 2024-	Active	82	178	16	0	143	159	32
TOTAL VETERANS SERVED FY23					1325	7524	2371	436	2651	5458	2289

