CLINICAL PHARMACY RESIDENT INTERVENTION

Evidence-Informed Structural Intervention

INTERVENTION DESCRIPTION

Goals of Intervention

- Increase antiretroviral treatment (ART) adherence
- Increase CD4 count
- Increase HIV viral suppression

Target Population

- Veterans with HIV

Brief Description

In the *Clinical Pharmacy Resident Intervention*, a pharmacy resident creates and leads an HIV pharmacotherapy clinic to increase HIV suppression among veterans with HIV at the Tennessee Valley Healthcare System Veterans Affairs (TVHS VA) Medical Center. In the HIV pharmacotherapy clinic, the pharmacy resident performs ART regimen evaluation and ART adherence assessment. Additionally, the pharmacy resident provides targeted patient-specific interventions in the clinic to address comorbidities such as Hepatitis C, diabetes, hypertension, smoking cessation, immunization screenings, and patient referrals to mental health, social work, and substance abuse counseling. Veterans receiving care at the TVHS VA are enrolled in the HIV pharmacotherapy clinic by a referral from their primary HIV provider or by the pharmacy resident contacting patients with unsuppressed HIV viral loads. Clinic visits with pharmacy residents last between 30 and 90 minutes and all visits are scheduled on one half-day per week. The pharmacy resident follows patients for a minimum of 3 months via telephone or subsequent clinic visits for patient support and additional patient-specific interventions as needed. Prior to establishing the HIV pharmacotherapy clinic, the pharmacy resident received training from a clinical pharmacy specialist at a neighboring institution with HIV pharmacy services for one month during the postgraduate year 1 and underwent a self-directed study of HIV pharmacotherapy. While operating the HIV pharmacotherapy clinic, the pharmacy resident is mentored by a clinical HIV pharmacist who is certified by the American Academy of HIV Medicine, and works with a multidisciplinary team of physicians, nurses, and a nurse practitioner to provide care for veterans with HIV.

Theoretical Basis

- None reported

Intervention Duration

- Clinic visits, lasting between 30 and 90 minutes for one half-day per week, for a minimum of 3 months

Intervention Setting
- Tennessee Valley Healthcare System Veterans Affairs (TVHS VA) Medical Center
- Locations where participants had access to their personal phone

Deliverer
- Trained pharmacy resident mentored by an AAHIVP-certified clinical HIV pharmacist

Delivery Methods
- Adherence assessment
- Counseling
- Referrals
- Telephone calls

Structural Components
- Access
  - Increased access to HIV services by adding a pharmacy resident to provide HIV pharmacotherapy clinical services within the TVHS VA infectious disease clinic
- Capacity Building – Provider/supervisor training
  - Trained pharmacy resident under a clinical pharmacy specialist located in a neighboring institution with HIV pharmacy services for one month to deliver HIV care to veterans with HIV, as well as thorough self-directed study of HIV pharmacotherapy, and continued mentorship from an AAHIVP-certified clinical HIV pharmacist mentored pharmacy resident during HIV pharmacotherapy clinic operations
- Physical Structure – Integration of services
  - Integrated HIV pharmacotherapy clinical services within the TVHS VA infectious disease clinic

INTERVENTION PACKAGE INFORMATION

An intervention package is not available at this time. Please contact **Autumn Zuckerman,** Vanderbilt Specialty Pharmacy, 726 Melrose Avenue, Nashville, TN 37212.

Email: **autumn.zuckerman@vumc.org** for details on intervention materials.

EVALUATION STUDY AND RESULTS

Study Location Information
The original evaluation study was conducted in Tennessee between 2014 and 2015.

Key Intervention Effects
- Increased ART adherence
- Increased CD4 count
- Increased HIV viral suppression

Recruitment Settings
Tennessee Valley Healthcare System Veterans Affairs database

Eligibility Criteria
Clinic patients with HIV were eligible if they had a detectable viral load within the last 6 months from enrollment and initiated ART either during the study evaluation period or by referral from an infectious disease provider for one or more of the following: polypharmacy/complex medication evaluation, hepatitis C virus (HCV) coinfection treatment initiation evaluation, suspected poor adherence, comorbid disease state management, or HIV treatment initiation or adjustment counseling.

Study Sample
The baseline study sample of 30 clinic patients on ART with a detectable viral load is characterized by the following:
- *53% black, 47% white*
- *100% male*
- *Median age of 56 years*
- *70% history of ART resistance*
- *23% reported substance abuse*
- *67% were engaged with primary care provider*
- *63% were on once-daily regimen*
- *37% were on twice-daily regimen*
- *13% with HCV co-infection*

Assignment Method
Not applicable.

Comparison
The study utilizes a pre/post research design. The clinic patient's pre-intervention data were extracted from the Tennessee Valley Healthcare System prior to the intervention and compared to their post intervention data.

Relevant Outcomes Measured
- HIV viral suppression was measured as:
    - the percentage of patients achieving an undetectable plasma HIV viral load, defined as <20 RNA copies/mL, and
    - the change in plasma HIV viral load (log/mL) from pre-intervention to post-intervention
- ART adherence was assessed using the Visual Analogue Adherence Scale (VAS) (percentage).
- CD4 count was assessed as the change in CD4 T-cell count (cells/mm^3) from pre-intervention to post-intervention

Participant Retention
Because participant retention is not a criterion for the Structural Interventions chapter, the Prevention Research Synthesis project does not evaluate that information.

Significant Findings on Relevant Outcomes
- There was a significant decrease in median viral load (median = 0.75, IQR = 0.2—2.4) from pre-intervention to post-intervention (pre-intervention median [IQR] = 2.2 [1.7—4] vs. post-intervention median [IQR] = 1.4 [1.4—1.7], $p < 0.0001$).

- There was a significant increase in ART adherence from pre-intervention to post-intervention (pre-intervention median [IQR] = 93% [50 – 100] vs post-intervention median [IQR] = 100% [100 – 100], p = 0.0001).
- There was a significant increase by 12% relative change in median CD4 count from pre-intervention to post-intervention (pre-intervention median [IQR] = 464 [310 – 637] vs post-intervention median [IQR] = 525 [331 – 803], p = 0.01).

Strengths
- None identified

Considerations
Additional significant positive findings on non-relevant outcomes
- None reported

Non-significant findings on relevant outcomes
- None reported

Negative findings
- None reported

Other related findings
- At post-intervention, 70% of patients achieved viral suppression. Additionally, 27% of patients did not achieve viral suppression but had a viral load decrease of at least 1 log. There was only 1 patient who did not achieve viral suppression and did not have a decrease in viral load by 1 log.
- As expected, those with baseline low-level viremia were more likely to become suppressed, suggesting that additional research is needed to ascertain the longer-term benefits of the intervention in patients with high viral loads.

Implementation-research findings
- None reported

Process/study execution-related findings
- Prior to establishing the HIV pharmacotherapy clinic, the pharmacy resident received training from a clinical pharmacy specialist located in a neighboring institution with HIV pharmacy services for one month to deliver HIV care to veterans with HIV, and, also, underwent self-directed study of HIV pharmacotherapy.
- During operation of the HIV pharmacotherapy clinic, the pharmacy resident received ongoing mentorship from an AAHIVP-certified clinical HIV pharmacist while operating the HIV pharmacotherapy clinic

Adverse events
- None reported

Funding
None reported

REFERENCES AND CONTACT INFORMATION

Bagwell, A., McFarland, M. S., & Hulgan, T. (2018). An innovative approach to addressing the HIV care continuum: Implementation of a clinical pharmacy resident in a veteran's affairs HIV specialty clinic. *Journal of Pharmacy Practice, 31*(5)422-428.

Researcher: **Autumn Bagwell Zuckerman**
Vanderbilt Specialty Pharmacy
Vanderbilt University Medical Center – Nashville
726 Melrose Avenue
Nashville, Tennessee 37212

Email: autumn.zuckerman@vumc.org