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Clinical Impact of an HIV Specialist Pharmacist Collaborative Practice Agreement: A 1-year Retrospective Review of Interventions

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Background

- HIV care receives regular updates for medications and laboratory tests.
- HIV medications have many drug-drug interactions and unique side effects that do not usually follow a class effect.
- Many Medication Assistance Programs (MAPs) exist for HIV care.
- Pharmacists are specially trained to mitigate drug-drug interactions, to avoid side effects, and to reduce pill burden.
- Pharmacist led HIV care improves anti-retroviral therapy (ART) adherence rates.
- HIV viral load (VL) and CD₄⁺ cell counts improve with greater pharmacist involvement in HIV management.
- New collaborative practice agreement (CPA) for HIV was established at Providence in September 2018.

Current Guidelines

- Non-pregnant:** 2 NRTIs + 1 INSTI
- Pregnant:** continue current regimen, RAL + 2 NRTIs (all trimesters), or DTG + 2 NRTIs (2nd, 3rd trimesters)

Abbreviations

Brand Name	Individual Agents
Biktarvy: BIC/TAF/FTC	BIC: Bictegravir
Atripla: EFV/TDF/FTC	DTG: Dolutegravir
Truvada: TDF/FTC	RAL: Raltegravir
	TDF: tenofovir disoproxil fumarate
	TAF: tenofovir alafenamide
	FTC: emtricitabine
	EFV: efavirenz

Objectives

- Primary:** Evaluate clinical impact of an HIV specialist pharmacist CPA on patient care
 - Composite of ART changes for genotype results, safety (interactions, side effects), and pill burden
- Secondary:**
 - Number of visits for HIV/AIDS, PrEP, and PEP
 - Number of MAP interventions
 - HIV VL and CD₄⁺ count changes over time
 - No change = VL and CD₄⁺ count kept within goal
 - Improved = VL ↓; CD₄⁺ count ↑
 - Worsened = VL ↑; CD₄⁺ count ↓
 - Co-morbid disease state medication modifications
 - Number of Coordination of Care interventions

Methods

- Retrospective chart-review
- Primary Endpoint:** composite of ART changes for genotype results, safety (interactions, side effects), and pill burden
- Quantitative statistics utilized
- IRB granted exempt status

Results

Table 1. Patient Demographics (N=100)	
Age, mean (range)	49 years (21-83)
Biological Sex	93% male
Gender Identity	1% trans-female

Results

Table 2. Primary Endpoint (All Patients, N = 100)	
No Change	27 (27%)
Composite	73 (73%)
Safety (drug interactions, side effects)	49 (67%) • Example: EFV → BIC = 14
Safety + PB	5 (7%)
Pill Burden (PB)	13 (18%)
Genotype + PB	2 (3%)
Genotype Results	4 (5%)

Figure 1. Anti-Retroviral Therapy Modifications and Rationale for Change (All Patients, N = 100)

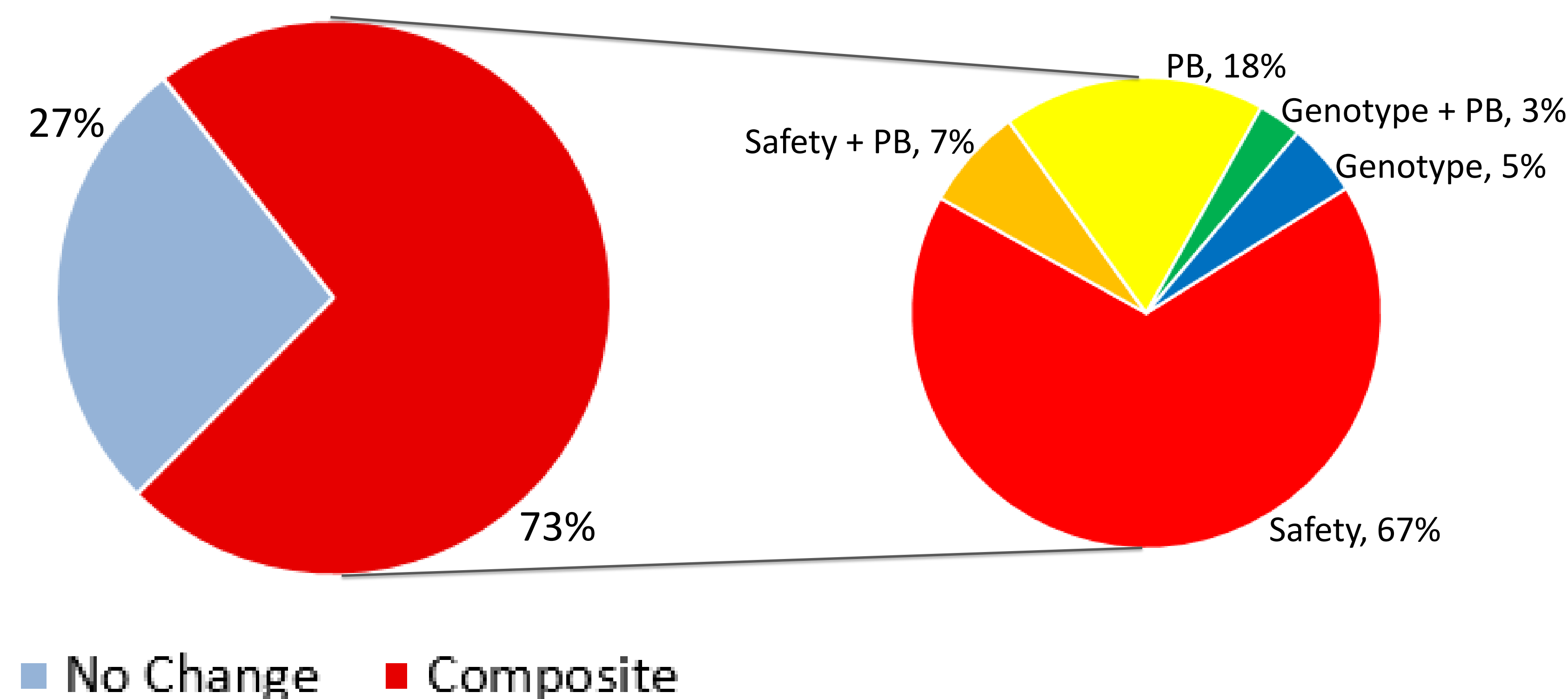


Table 3. Secondary Endpoints (All Patients, N=100)	
HIV/AIDS Visits	75
PEP Visits	18
PrEP Visits	7
MAP Enrollments	49

Table 4. Secondary Endpoints (HIV+ Patients, N=75)		
	Level of Control	Overall Average
HIV Viral Load (Goal <20)	No change = 54 Improved = 13 Worsened = 6 Lost to follow-up = 2	Number of patients at goal (Pre-PharmD) = 58 Number of patients at goal (Post) = 63 Average VL Pre → Post-PharmD = 2054 → 298
CD ₄ ⁺ Count (Goal ≥200)	No change = 57 Improved = 2 Worsened = 0 Lost to follow-up = 16	Number of patients at goal (Pre-PharmD) = 72 Number of patients at goal (Post) = 74 Average CD ₄ ⁺ Pre → Post-PharmD = 618 → 690
	Type of Change	Examples
Co-morbid Disease State Medication Modifications	Started = 4 Stopped = 3 Modified = 2	• Decreased metformin to 1000 mg/day due to DTG interaction • Changed intranasal steroid due to COBI interaction
Coordination of Care Interventions	7	• Worked with ID physician to order DEXA • Wrote detailed birth plan

Discussion

- Pharmacist role may be primarily in improving ART safety.
 - Updating regimens to avoid adverse drug reactions
 - Detecting and mitigating drug interactions
- Possibly less emphasis on pill burden than in the past
- ART changes can be made for more than one reason.
- Pharmacists may have more time than ID physicians for f/u, improving engagement, and enrolling patients in MAPs.
 - Especially for PEP and PrEP
- Patient outcomes were improved since PharmD actively managed care instead of made recommendations.

Study Limitations

- No statistical analysis
- Small sample size
- Did not collect race/ethnicity data
- Not all patients analyzed (total number seen = 224)

Conclusions

- HIV trained pharmacists improve patient care and improve outcomes when directly involved.
- Key roles for Pharmacists in HIV care
 - Optimizing medications for safety > other reasons
 - “Upgrading” regimens to avoid ADRs
 - Mitigating current/possible drug interactions
 - Decreasing pill burden
- All pharmacists should screen for drug interactions with HIV medications.

Future Considerations

- More training in HIV+ care for non-specialized pharmacists
- Increasing accessibility to PrEP and PEP via non-specialized pharmacists

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- All authors: nothing to disclose

