

# Who in the world buys ARVs on the black market? The impact of drug use and ARV diversion on adherence



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## Abstract

**Aims:** Anti-retroviral (ARV) adherence is the most important predictor of regimen success and HIV viral suppression. HIV-positive drug users are found to have less access to ARV treatment and to initiate treatment at more advanced stages of infection than non-drug users. Recent studies also identify ARV diversion as a factor that may affect ARV adherence in drug users. This study examines motivations behind buying ARVs on the black market with a focus on the role of drug use and ARV diversion on ARV adherence.

**Methods:** Semi-structured, in-depth interviews were conducted with 44 people living with HIV who reported purchasing ARVs on the street at least once in the past three months. Respondents gave detailed information about their drug use, ARV adherence, and history of buying ARVs on the street. Grounded theory was used to code and analyze interviews using the program Atlas.ti.

**Results:** The sample averaged 46 years old (SD=7.8), 59% male, and 43% non-Hispanic Black. 36% of participants reported drinking alcohol, 34% used crack, 27% used cocaine, 23% used marijuana, and 9% used heroin. Motivations for buying ARVs on the black market included: having sold or lost ARVs, having provider or insurance-related barriers to the legal access of ARVs, and profit-making. The most common motivation for buying ARVs illicitly was to replace a legitimately obtained prescription that was sold for money to purchase illicit drugs, personal items, or to pay bills. The data suggest that drug dependence undermines ARV adherence in several ways. Participants mentioned that drug seeking and use impeded ARV adherence and the desire not to mix illicit drugs and ARVs in their system.

**Conclusions:** Limited ARV adherence among substance users may further exacerbate the risk of treatment failure, ARV resistance, and HIV transmission. Our study highlights a need for HIV literacy education, accessible drug treatment programs, and interventions to support ARV adherence.

## Introduction

• Prescription drug diversion is defined as the unlawful channeling of regulated pharmaceuticals from legal sources (e.g. legitimate prescriptions filled by patient) to the illicit market.<sup>1</sup>

• Antiretroviral (ARV) drug diversion has been documented in at least seven U.S. states, with substantial ARV diversion revealed in South Florida.<sup>2</sup>

- ARV diversion has serious implications for the integrity of HIV care and prevention, making it a critical public health concern.
  - a) ARV diversion has been associated with regimen non-adherence among people who divert their medications.<sup>2</sup>
  - b) Non-adherence is directly linked to HIV treatment failure, the lack of viral suppression, an increased risk of HIV transmissibility, and the development of ARV resistance and transmitting ARV resistant strains of HIV.
  - c) People taking illicit ARVs without medical supervision may be underdosing or not adhering to regimen protocols, which would further elevate the risk for treatment failure, ARV resistance, and HIV transmission.
  - d) ARV diversion may compromise the pharmaceutical supply given that ARVs purchased in illicit markets may be illegitimate, expired, or compromised by mishandling, and are sometimes recycled into the formal medication supply chain.<sup>3</sup>

• Prior research in Miami identified several types of potential illicit ARV buyers, including people living with HIV who wish not to disclose their status and large-scale brokers who ship ARVs to countries in Latin American and the Caribbean with supply shortages.<sup>4</sup> A few reports suggest that diverted ARVs may be sought after for their psychoactive properties<sup>4</sup> or for their non-prescribed use as pre-/post-exposure prophylaxis.<sup>5</sup>

• Despite documented ARV diversion, little is known about the *demand* for ARVs in the illicit marketplace. Who purchases ARVs on the illicit marketplace and what are their motivations?

## References

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## Methods

• Targeted sampling was used to recruit participants, an appropriate method for hard-to-reach populations, where a set number of participants are recruited within specific geographical districts.

• Participants were eligible if they were 18+ years old, had documented HIV+ serostatus, and had purchased illicit ARVs at least once in the prior three months.

• A total of 44 buyers of illicit ARVs were interviewed between November 2009 and July 2011.

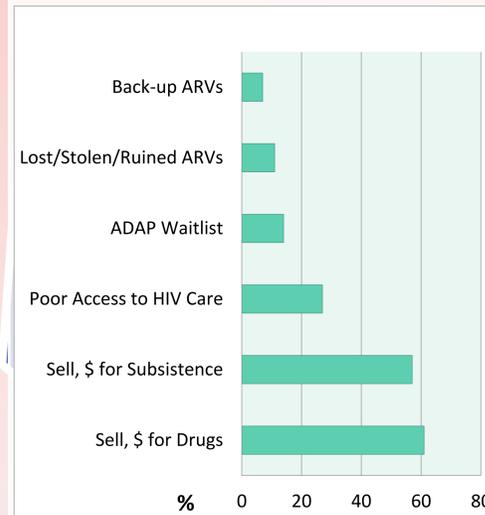
• Interviews covered history with HIV, access and quality of HIV care, illicit buying and selling of ARVs, concerns and consequences of buying illicit ARVs, and characteristics of the illicit ARV market

• A grounded theory approach was used to analyze the qualitative data and, consistent with this methodology, constant comparison was conducted across each stage of the research process for a dynamic process.

## Sample Characteristics (n=44)

Age (range, average)	(26-62, 45.8 years)
Male	59%
Race/Ethnicity	
Black/African-American	43%
Hispanic	39%
Non-Hispanic White	18%
Interview in English	75%
History of Homelessness	30%
Length of time HIV+ (range, average)	(1-27, 13.1 years)
History of substances used	
Alcohol	36%
Crack Cocaine	34%
Powder Cocaine	27%
Marijuana	23%
Heroin	9%

## Motivations for Buying ARVs



## Quotes

### BACK-UP ARVS

"I have an extra stock...of my medication for back up...in case we get a storm, in case I can't get to the pharmacy. And...you can get your medicine only on a month to month basis...But it's...up to the pharmacy...some make exceptions" (*non-Hispanic Black Male, 53, HIV+ for 23 years*)

### TO REPLACE LOST, STOLEN, OR RUINED ARVS

"I lost my medicine...I was on the bus and I left the whole package there. So I bought half...to cover me every other day." (*Hispanic White Male, 61, HIV+ for 12 yrs*)

"I was living somewhere...and me and that person got into a fight...they threw my medications away... So I ended up having to buy some from a friend." (*non-Hispanic White Male, 46, HIV+ for 11 years*)

### ADAP WAITLIST

"You had to keep your appointments and there was some sort of notice in the doctor's office and...I missed the appointment...I'm in the process of trying to get on that waiting list." (*non-Hispanic White Male, 39, living with HIV for 21 years*)

"I went back to ADAP to fill prescriptions, they threw me off the program, because I didn't pick up the medication." (*non-Hispanic White Male, 52, HIV+ for 24 years*)

"I been complaining about the whole (ADAP) list and one of my friends...hadn't been taking his meds so he had 2 or 3 stockpiled. So I just offered him some money...But then the next month, I didn't do it. Then the following month...I bought them again....Then I'm like 'Well, I'm not really doing myself any favors because if I'm taking them for a month and then I'm not taking them...I might screw up the whole thing'...don't have any opportunistic...I'll wait again...if something happens, I'm gonna end up in the emergency room." (*non-Hispanic White Male, 39, HIV+ for 21 years*)

## Quotes

### POOR ACCESS TO HIV CARE

"(I've been with this doctor) for about four months...I see him for two minutes...He'll come in, look at the labs...'Bah, bah, bah, okay'...Then write whatever and then bounce... I'mma talk to him this time...I've got some issues going on... I've had doctors before that would...sit down with you...ask questions, and spend at least 10-15 minutes." (*non-Hispanic White Male, 37, HIV+ for 7 years*)

"I am trying Truvada and Kaletra....I pay about \$80 for both...(My doctor) doesn't know I buy them...I don't want to go to jail for buying [illicit ARVs]. I'm doing well (taking meds w/o Rx), but it's a lot of money, I want to see if this [new] doctor prescribes them to me because I'm not about paying every month...(My current doctor) says that right now he can't, that he doesn't want to give them to me. Why? I don't know. He gives me an excuse." (*Hispanic White Male, 44, HIV+ for 15 years*)

"I got sick...I thought it was the HIV. Supposedly my numbers are good. I bought Isentress, Lexiva, and Reyataz... a friend told me that is what she takes. She takes them once a day, I take them twice...I don't want the viral load to go up." (*Hispanic White Female, 24, HIV+ for 2 years*)

"I'm not going to see no doctor at all... I just been buying it off the street...I just don't like the way the doctor talks to me...I've been through a lot of doctors...I just go when it's an emergency... I had a doctor that I liked before, but then I came to find out that all he wanted to do was have sex with me...I even had a doctor close his office and tell me...'Look, I'm not stupid. I know you haven't been taking your medication...So if you need help, I'll give you the most expensive medication that's out on the market and...just let me put on a condom and lay you over the table and let me have sex with you'" (*Hispanic White Female, 26, HIV+ for 4 years*)

### BUYING ARVS AFTER SELLING ARVS FOR MONEY FOR SUBSISTENCE

"I was in need of some money...I had to eat. I had to survive...to buy personal hygiene...I was used to doing some type of work....and since I've been sickly...I haven't been able to function right." (*non-Hispanic Black Female, 46, HIV+ for 19 years*)

"When we get jammed up and need money; we sell 'em....I needed the money for a bill." (*non-Hispanic Black Female, 43, HIV+ for 3 years*)

"I was able to sell my meds and, later on...go back to him and buy medication that he couldn't get rid of...living on a disability income is not a whole lot of money...I have some transportation and I have to maintain it." (*non-Hispanic Black Male, 53, HIV+ for 23 years*)

### BUYING ARVS AFTER SELLING ARVS FOR MONEY FOR DRUGS

"I smoked (crack) over the weekend and I had sold my meds, and then I felt stupid...Because nobody is knowing that I'm getting high, my doctor...don't know that I relapsed...so I had to turn around and...get medicine." (*non-Hispanic White Female, 47, HIV+ for 16 years*)

"After you come down off of the drugs...go to feeling guilty about it and trying to buy it back, you know, buy at least a couple of pills to last me...until I get my next prescription." (*non-Hispanic Black Female, 37, HIV+ for 4 years*)

"I had sold my medication one month and I was out...I purchased some from her (friend)...I have skipped a lot...And I have had resistance...but somehow my CD4 builds back up and I get back on track." (*non-Hispanic Black Male, 44, HIV+ for 22 years*)

## Discussion and Conclusions

- Barriers to accessing HIV care and low quality of care are two key motivations for buying illicit ARVs. At the time of our study, Florida's ADAP fell \$14 million short of their budget and severely restricted eligibility criteria, which led to a wait list that peaked in 2011 of 4,068 people in need of ARVs. Our study exemplifies structural barriers to HIV care that are often overlooked.
- Participants purchased ARVs from illicit markets to secure treatment after a gap in formal care caused by missed appointments or a poor patient-provider relationship. Retention efforts must improve the quality of the patient-provider relationship to improve patient engagement in HIV care.
- Our study documents an HIV treatment disparity for substance users. Participants were reluctant to divulge substance use or relapses to their healthcare providers for fear of being taken off their ARV regimen. Likewise, participants purchased illicit ARVs because they were not prescribed them.
- ARV adherence patterns in our sample ranged from complete adherence to behaviors such as skipping pills due to drug use, and stretching pills across days or weeks by limiting doses; a range that reflects both competing needs and low HIV literacy. Periodic adherence has serious risk for treatment failure, ARV resistance, and HIV transmission.

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