



# Pharmacists Perceptions Engaging in HIV Prevention Activities with Populations at-risk for HIV Infection

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## Results

- Pharmacy characteristics are summarized on Table 1 and pharmacist demographics on Table 2
- Table 3 provides statistics on the proportion of pharmacists who agreed/strongly agreed being comfortable providing each of the 7 HIV prevention-related activity
- Table 4 contains results of multivariate analysis with interaction terms, summarized as follows:
  - High HIV+ patient population was significantly associated with comfort selling needles to PWIDs but marginally associated with comfort counseling on condom use
  - Specialty pharmacy was only marginally associated with comfort answering HIV-related questions
  - HIV certification was the single most significant predictor of high comfort with 5 of the 7 HIV prevention-related activities (HIV-related questions, condom use, counseling HIV+ heterosexual and MSM, and filling PrEP)
  - Pharmacists with higher publically-insured patients had more comfort counseling HIV+ patients and counseling/filling PrEPs
- Most of the interactions were not statistically significant:
  - HIV certification with HIV+ patient population was only marginally associated with less comfort counseling on condom use
- However, the interaction between HIV high county and high HIV+ patient population was associated with lower comfort counseling heterosexual and MSMs
- HIV certification was not significant predictor of comfort with counseling on PrEP

## Discussion

Contrary to our first hypothesis, pharmacists in high HIV regions were less likely to report comfort with HIV prevention-related activities

In support of our second hypothesis, pharmacists in specialty pharmacies reported comfort-levels answering HIV-related questions

In support of our third hypothesis, HIV certification significantly predicted comfort with most HIV prevention-related activities

Pharmacists with more HIV+ patients were more comfortable talking about condom use and counseling on PrEP

Almost none of the pharmacy or pharmacist factors significantly predicted comfort with counseling PWIDs how to clean needles

Only HIV certification and high HIV+ population were significantly associated with comfort selling needles to PWIDs

## Conclusions

HIV certification is the single most significant predictor of pharmacists' comfort engaging in HIV prevention-related activities

Pharmacies should invest in HIV certification

Pharmacists HIV certification curricula could be expanded to include comfort counseling PWIDs how to clean needles and on PrEP

Finding that pharmacists in high HIV regions had less comfort with HIV prevention-related activities is counter-intuitive

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## Introduction

- Globally, 35 million people are living with HIV (PWIH), with 2.1 million new infections each year
- Of the 15.9 million people who inject drugs (PWIDs) worldwide, 3 million (13.1%) are living with HIV
- Pharmacists are uniquely positioned to provide HIV prevention services through risk reduction counseling, participation in needle-exchange programs, sale of non-prescription syringes, HIV testing, sale of condoms, safe-sex education, and referrals for medical, social and drug treatment services [Oramasionwu et al., 2015]

- In addition, Pharmacists in community settings can to promote pre-exposure prophylaxis (PrEP) before sexual or drug-use related exposures—a cost-effective HIV prevention method—among PWIDs. [Schackman BR, Eggman AA, 2012]
- There is a growing research on pharmacists' attitudes about providing HIV prevention-related services to at-risk populations
- We examined pharmacists' perceptions of engaging in HIV prevention-related activities including HIV counseling, condom use and PrEP

## Methods

### Participants:

We enrolled 270 pharmacists but only 225 in 37 states completed the study. We present findings from 188 community-based pharmacists that provided care to at least 10 HIV-positive patients.

### Survey:

Pharmacists were asked to rate their comfort-level with seven HIV prevention-related activities using a 5 point Likert Scale (1= strongly disagree, 5 = strongly agree):

- Counseling HIV-positive heterosexuals
- Counseling HIV-negative clients about PrEP
- Responding to HIV-related questions
- Counseling on condom-use and spermicide
- Filling/counseling HIV-positive MSM
- Selling needles to PWIDs
- Discussing how to clean needles with PWIDs

### Hypotheses: We tested 3 hypotheses:

- Ho1: Pharmacists in high HIV regions are more likely to report being comfortable engaging in HIV prevention-related activities
- Ho2: Pharmacists working in specialty pharmacies are more likely to report being comfortable engaging in HIV prevention-related activities
- Ho3: HIV-certified pharmacists are more likely to report being comfortable engaging in HIV prevention-related activities

### Data Analysis was done in a 4-step process:

- Step 1: We generated a HIV prevention index of the 7 HIV prevention-related activities [Cronbach alpha =0.83]
- Step 2: We ran binary generalized linear modelling (GLM) regressions for each HIV prevention-related activity and the HIV prevention index (hereafter, dependent variables) and each pharmacist factor (e.g., age, education, experience) and pharmacy factor (e.g., type, disease, prescription size)
- Step 3: We ran multiple GLM regressions for each dependent variable and all statistically significant pharmacist and pharmacy factors
- Step 4: We re-ran multiple GLM regressions for statistically significant variables including the following interactions terms:
  - HIV certification and HIV patient volume
  - Specialty and HIV certification
  - High HIV region and HIV patient volume

TABLE 4: GLM MULTIVARIATE ANALYSIS OF SIGNIFICANT VARIABLES WITH INTERACTIONS: PHARMACISTS' COMFORT LEVELS CONDUCTING HIV PREVENTION-RELATED ACTIVITIES

	(1) Counsel Hetero HIV+	(2) Counsel PrEP	(3) HIV Ques	(4) Condom use	(5) Counsel MSM HIV+	(6) PWIDs Sell Needles	(7) PWIDs Clean Needles	(8) HIV Prevention Index
HIV Certification	1.259*** (0.115)	1.569*** (0.277)	1.509*** (0.292)	1.212** (0.106)	2.048*** (0.358)	1.402 (0.332)	1.924*** (0.472)	
HIV Orgn Membership		1.305 (0.218)						
Public Insurance	1.154 (0.139)	1.434* (0.314)		1.244* (0.143)			1.341 (0.360)	
Mid HIV patients vol	1.162 (0.246)	1.253 (0.226)	1.465 (0.106)	1.848* (0.071)	0.956 (0.195)	3.142*** (1.571)	1.716 (0.828)	
High HIV patients vol	1.097 (0.228)	1.306 (0.215)	1.153 (0.294)	1.122 (0.401)	0.912 (0.181)	2.391** (1.194)	1.156 (0.545)	
Specialty pharmacy			1.216* (0.132)				1.295 (0.187)	
HIV Certification * Med HIV+ patient vol	1.166 (0.240)	0.919 (0.313)	0.974 (0.345)	0.947 (0.188)	1.404 (0.851)		0.955 (0.448)	
HIV Certification * High HIV+ patient vol	0.953 (0.139)	0.792 (0.188)	0.606** (0.151)	0.989 (0.138)	0.601 (0.272)		0.649 (0.212)	
Specialty * HIV Certification			0.914 (0.204)				0.877 (0.270)	
Mid prescription vol	0.921 (0.055)	0.892 (0.055)	0.864 (0.054)				0.872 (0.127)	
High prescription vol	1.031 (0.077)	1.030 (0.130)	1.020 (0.131)				1.074 (0.189)	
Pharmacy manager	0.952 (0.062)	0.955 (0.109)	0.949 (0.110)	0.941 (0.056)	0.738 (0.181)	0.681 (0.166)	0.958 (0.133)	
Full time position		0.828 (0.073)	0.801** (0.093)	0.876 (0.102)	0.766 (0.160)	0.631* (0.153)	0.763* (0.117)	
High HIV region	-0.852** (0.092)	-0.837** (0.083)	-0.838 (0.089)	0.911 (0.108)	0.904 (0.064)		-0.751* (0.119)	
High HIV region * Med HIV patient vol	0.391*** (0.114)	0.662 (0.208)	0.662 (0.219)	0.669*** (0.090)			0.397*** (0.173)	
High HIV region * High HIV patient vol	0.869 (0.117)	0.814 (0.181)	0.814 (0.188)	0.812 (0.106)			0.755 (0.231)	
Age							1.000 (0.027)	
Licensed years							0.991 (0.027)	
Constant	103.11*** (21.71)	84.31*** (19.06)	71.30*** (26.19)	80.32*** (27.52)	43.17*** (8.686)	19.52*** (16.91)	40.47*** (10.95)	0.661 (0.327)
AIC	0.906	2.111	1.882	1.979	0.822	3.194	3.482	2.529

\*\*\*p<0.01, \*\*p<0.05, \*p<0.1

KEY  
 \* Pharmacists comfort-level: 1) filling/counseling HIV+ heterosexual; 2) filling/counseling PrEP to HIV+; 3) HIV-related questions; 4) condom-use and spermicide-related questions; 5) filling/counseling HIV+ MSM; 6) selling needles to PWIDs; 7) discussing how to clean needles with PWIDs; and (8) HIV Prevention Index.

TABLE 1: PHARMACY CHARACTERISTICS n=188

Pharmacy Type	n	%
Specialty only	66	35%
Traditional only	32	17%
Both specialty and traditional	90	48%
MSA		
10-top HIV-prevalance	75	40%
Other MSAs	113	60%
Region		
NorthEast	39	21%
Midwest	43	23%
West	55	29%
South	51	27%
Pharmacy patient volume		
Low <200 patients/day	101	54%
Medium 200 <-499 patients/day	68	36%
High >500 patients/day	19	10%
Pharmacy HIV patient volume		
Low 10 <20 HIV patients/month	21	11%
Medium 21<100 HIV patients/month	47	25%
High > 100 HIV patients/month	120	64%
Pharmacy prescription volume		
Low <200 scripts/day	68	36%
Medium 200 <-499 scripts/day	77	41%
High >500 scripts/day	43	23%
Disease Specialty		
HIV/Infectious Disease	127	68%
Other specialties	18	10%
No specialties	43	22%

TABLE 2: PHARMACIST DEMOGRAPHICS n = 188

	n	%
Gender		
Male	70	37%
Female	118	63%
Age group		
17-34 years	107	57%
35-50 years	58	31%
51+ years	23	12%
Ethnicity		
Caucasian	127	68%
Asian	36	19%
African American	12	6%
Other	13	7%
Job Position		
Manager/owner	46	24%
Not manager/owner	142	76%
Part-time or Full-time		
Fulltime	142	76%
Parttime	46	24%
Postgraduation education		
Yes	18	10%
No	170	90%
HIV Certification		
Yes	140	74%
No	48	26%
Membership in HIV Organization		
Yes	173	92%
No	15	8%
Post-licensure experience (years)		
1-5 years	81	43%
6-10 years	43	23%
11-20 years	31	16%
21+ years	33	18%

TABLE 3: PERCENTAGE OF PHARMACISTS WHO REPORTED AGREED/STRONGLY AGREED BEING COMFORTABLE CONDUCTING SELECT HIV PREVENTION-RELATED ACTIVITIES

	% Strongly agreed or agreed: N=188	%
*(1) Counsel Hetero HIV+	182	97%
*(2) Counsel PrEP	176	94%
*(3) HIV Ques	174	93%
*(4) Condom use	173	92%
*(5) Counsel MSM HIV+	170	90%
*(6) PWIDs Sell Needles	130	69%
*(7) PWIDs Clean Needles	102	54%

KEY  
 \* Pharmacists comfort-level: 1) filling/counseling HIV+ heterosexual; 2) filling/counseling PrEP to HIV+; 3) HIV-related questions; 4) condom-use and spermicide-related questions; 5) filling/counseling HIV+ MSM; 6) selling needles to PWIDs; and 7) discussing how to clean needles with PWIDs.