



HPTN

HIV Prevention
Trials Network

Illicit substance use among MSM and HIV in South America

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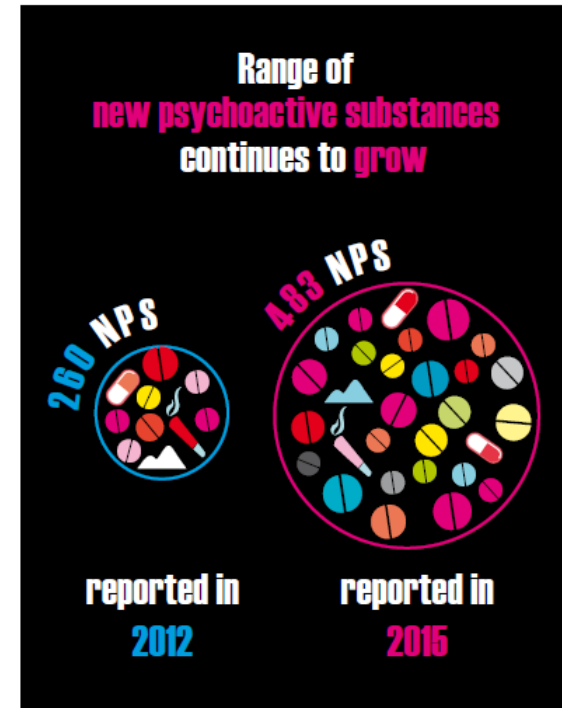
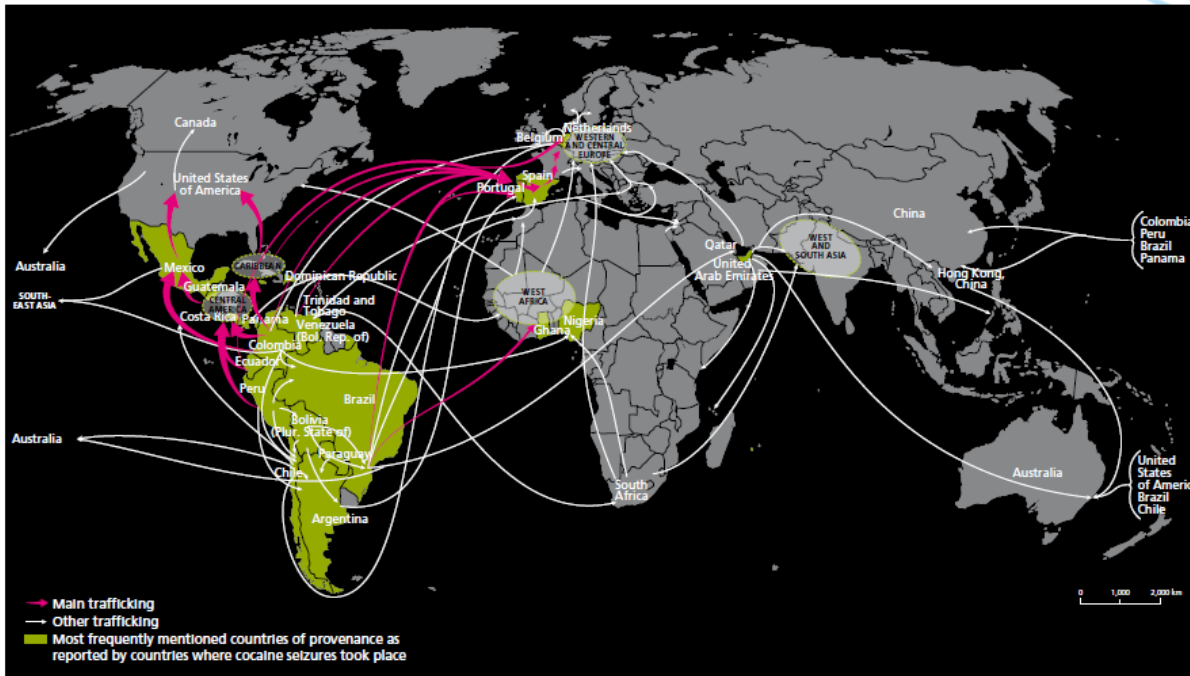
HPTN Regional Meeting – Lima, 2018

Outline

- Illicit substance use in South America (Argentina, Brazil and Peru)
 - Epidemiology (last 5-10 years)
 - Substance use and HIV
- Illicit substance use among MSM in Argentina, Brazil and Peru
 1. What illicit substances are MSM using?
 2. Do MSM use more illicit substances than hetero men?
 3. When do MSM use substances? Chemsex?
 4. Do MSM have substance use disorders (SUD)?
 5. Is illicit substance use a risk for HIV infection among MSM?
 6. Does the use affect HIV prevention measures ?
- Summary on research gaps on the above questions

Substance use is driven by multiple factors, including drug market

| Main cocaine trafficking flows, 2011-2015



EPIDEMIOLOGY OF SUBSTANCE USE DIFFERS ACROSS GEOGRAPHIC REGIONS AND TIME

Table : 12-month illicit substance use in the Americas-2015

	South America % (CI 95%)	North America % (CI 95%)
Cannabis	2.9 (2.8-3.0)	12.4 (12.3-12.4)
Cocaine*	0.9 (0.75-0.96)	1.8 (1.73-1.88)
Amphetamines** and prescription stimulants	0.25 (0.24-0.26)	1.9 (1.69-2.26)
“Ecstasy”	0.16 (0.14-0.17)	0.9 (0.89-0.89)
Opioids (opiates and prescription)	0.14 (0.06-0.49)	4.4 (4.1-4.5)
Opiates	0.06 (0.03-0.21)	0.5 (0.43-0.5)

Men and women, 12- 65 years. *Cocaine includes cocaine salt, "crack" cocaine and other types such as coca paste, cocaine base, basuco, paco and merla.**Includes amphetamines and methamphetamines

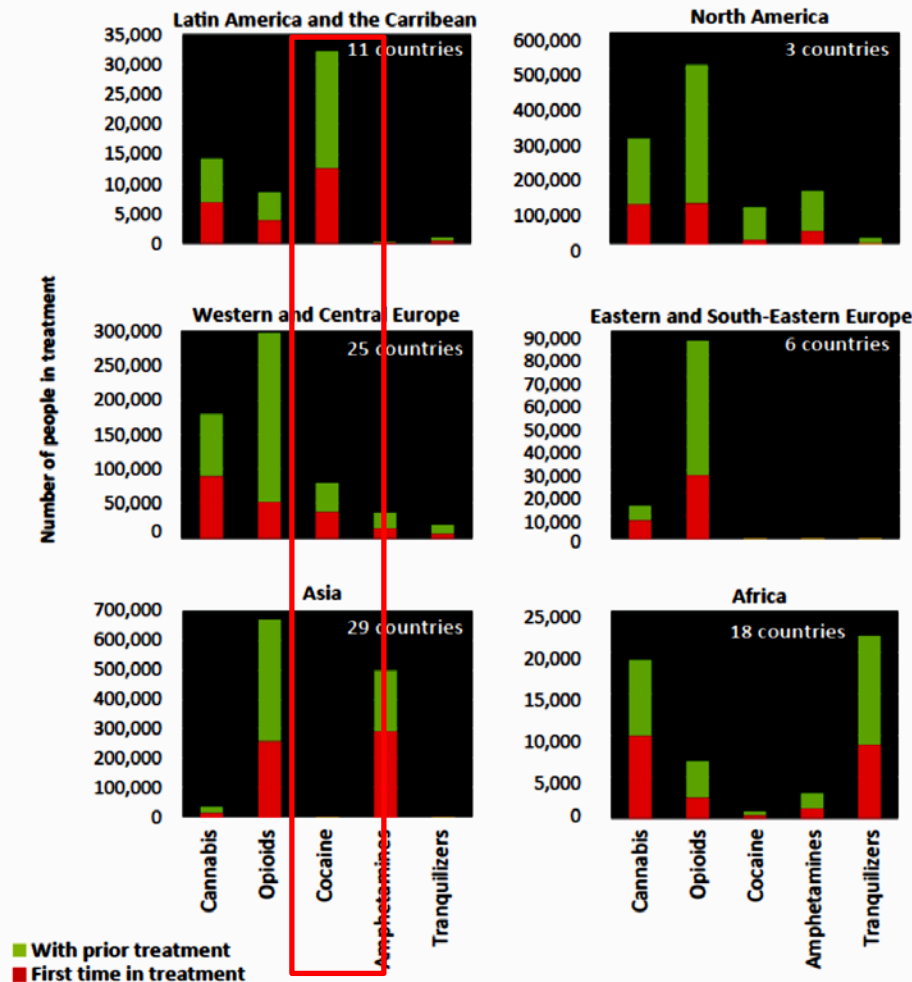
Sources: United Nations Office on Drugs and Crime estimates based on annual report questionnaire data and other official sources.

12-month illicit substance use among general population from Argentina, Brazil and Peru

	Argentina % (CI 95%)	Brazil %(CI 95%)	Peru %
Cannabis	7.8 (6.8-8.8)	2.5 (2.1-2.9)	1.0
Cocaine	1.5 (1.1-2.0)	0.9 (0.7-1.05)	0.4
Pasta base/Paco or Crack	0.1 (0.01-0.3)	0.3 (0.2-0.4)	0.5
Amphetamines and prescription stimulants	0.1(0.03-0.2)	0.3 (0.2-0.4)	-
Hallucinogens(LSD, peyote, mescaline, etc)	0.6 (0.3-0.9)	0.3 (0.1-0.4)	-
Ecstasy	0.3 (0.1-0.5)	0.15 (0.1-0.2)	0.0
Inhalants	0.1 (0.02-0.15)	0.2 (0.1-0.3)	0.1
Prescription opioids	-	1.4 (1.1-1.7)	-
Heroin	<0.02	0.05(0.0-0.1)	<0.0
Any illicit	8.3 (7.2-9.3)	3.2 (2.8-3.6)	1.5

% of people in treatment by first drug of abuse at admission

FIG. 5 Total number of people in treatment, by drug type and by region, 2015 or latest available data



	Argentina	Brazil	Peru
Cannabis	15.6%	14.2%	45.6%
Cocaine	70.2%	64.9%	49.6%
Inhalants	4.4%	8%	4%

Notes

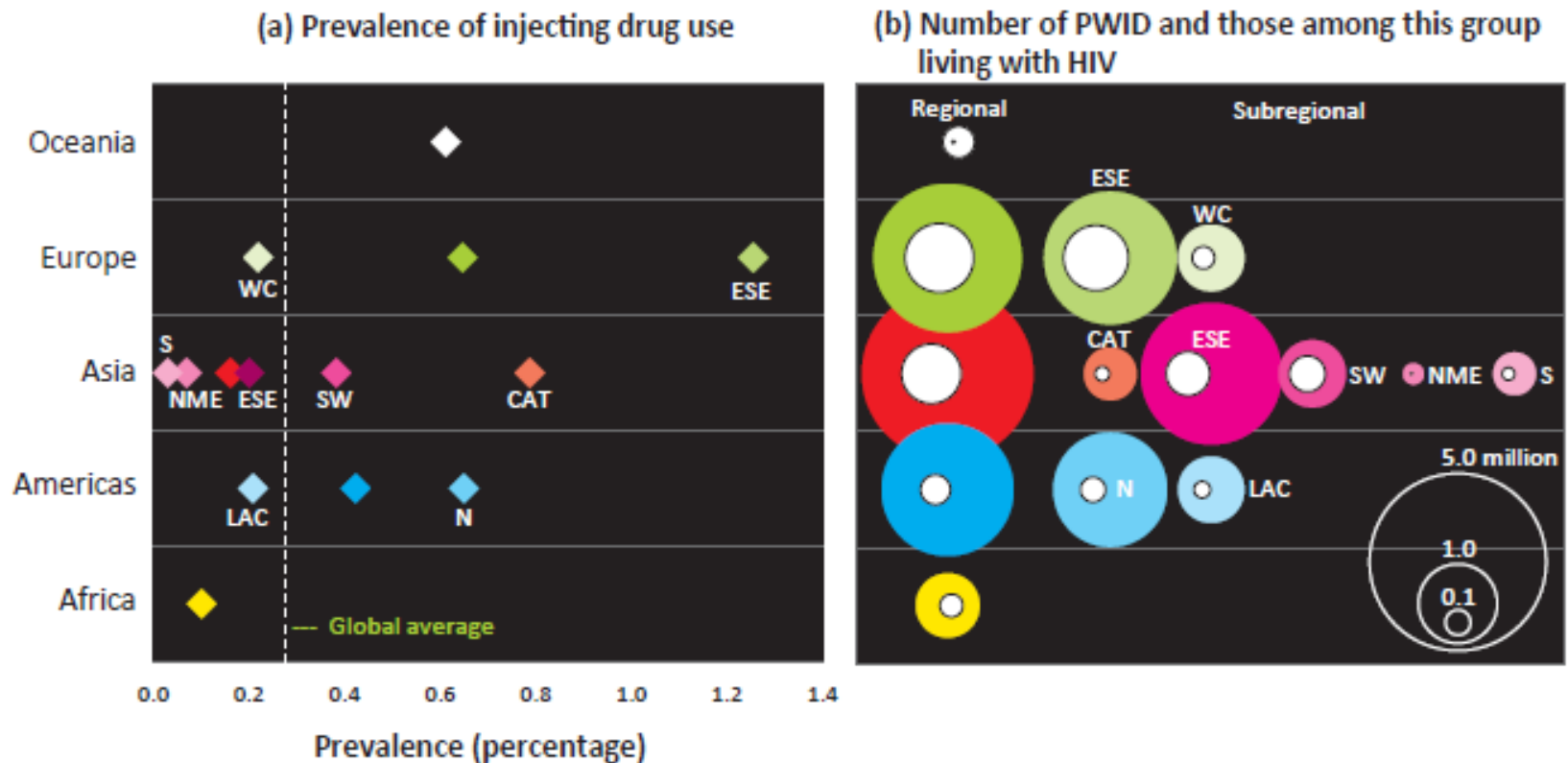
* Definitions of treatment interventions, recording practices (including counting rules) and methods for determining the primary drug of abuse differ from country to country;

** Figures may reflect number of persons or treatment episodes depending on the Member State; **figures exclude alcohol and nicotine.**

Sources : UNODC Annual Report Questionnaire (ARQ) ; Inter-American Drug Abuse Control Commission (CICAD)

HIV prevalence among cocaine users (general population)

FIG. 6 | Regional patterns in injecting drug use and HIV among people who inject drugs, 2015



Injected cocaine use decreased in some LA countries

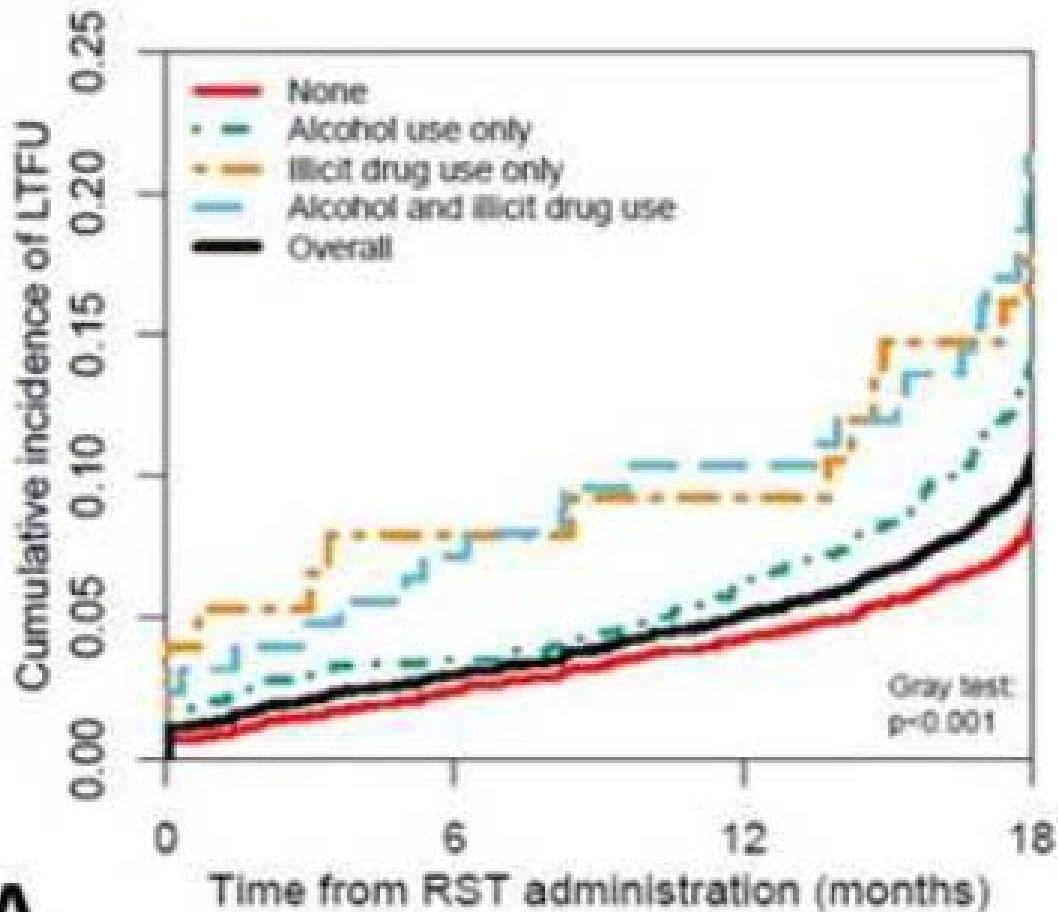
HIV prevalence among cocaine users (general population)

- HIV among non-injecting cocaine users
 - Argentina= 6.3%
 - N=504 , Clinical + non-clinical sample of non-injecting cocaine users from Buenos Aires (Rossi et al., 2008)
 - Brazil = 4.97% (CI 95% 3.75-6.56)
 - N=7381 crack users, time-location sampling (Bastos& Bertoni, 2014)
 - Peru=?

12-month substance use according to HIV status in Brazil. III BNHS , 2015

	HIV		P-value (Rao-Scott adjustment)
	Yes	No	
	(%)	(%)	
Alcohol	49.5	43.1	0.34
Tobacco	45.3	15.3	<0.01
Cannabis	10.5	2.5	0.06
Crack- cocaine	5.3	0.3	<0.01

De Boni et al. Preliminary data (Non-injected substance use and HIV status in the III Brazilian Household Survey on Substance Use - accepted to NIDA Forum 2018)



N=3343 PLWHA in CCASAnet sites from Argentina, Brazil, Chile, Honduras, Mexico and Peru

at CCASAnet sites, 2012–2013

Adjusted			
hazard ratio	95 % CI		p value
1.46	1.99	3.05	<.001
1.57	2.02	6.30	
1.68	3.19	7.79	

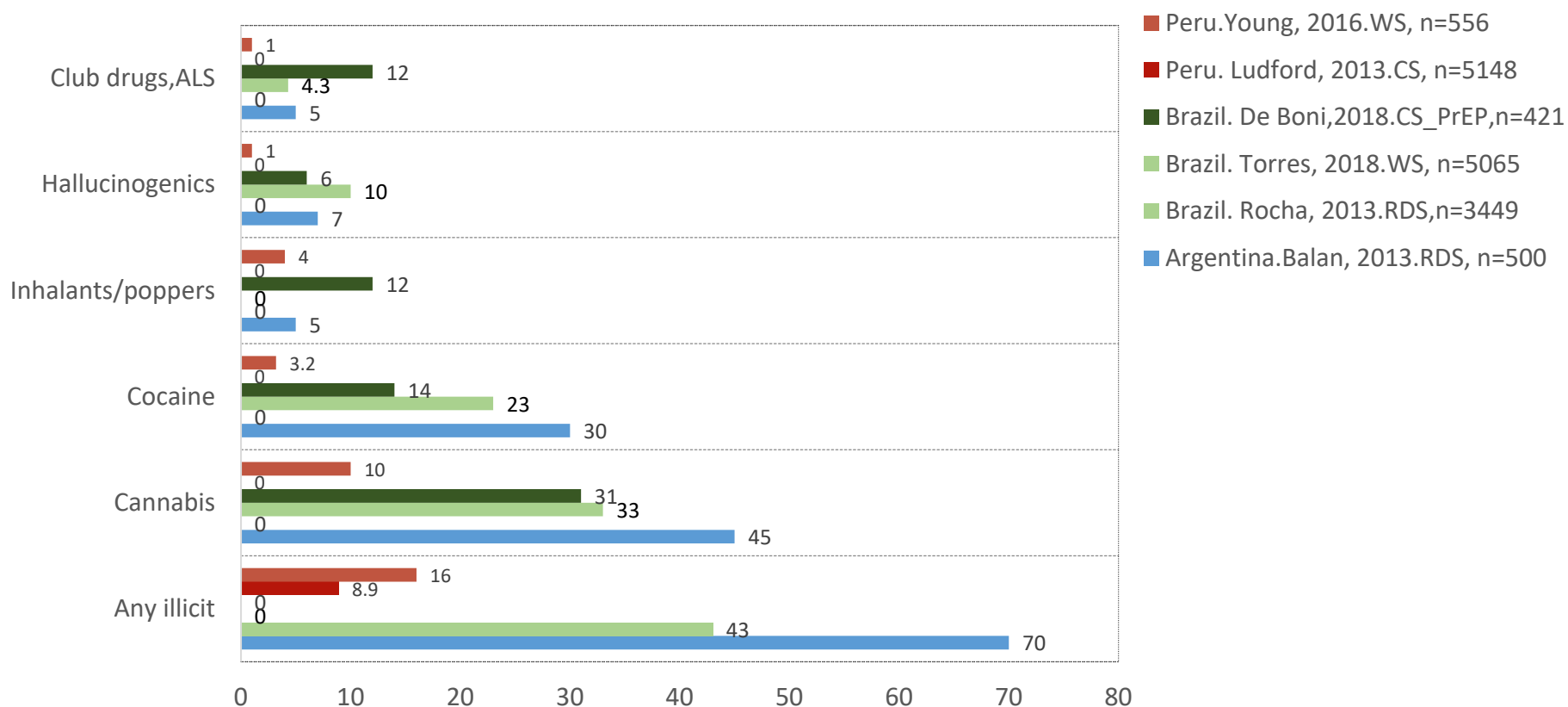
*RST =Rapid Screening Tool. De Boni et al. Is substance use associated with the cascade of care in Latin America?-PLoS One 2018

Substance use among MSM in Argentina, Brazil and Peru

1. What illicit substances are MSM using?
2. Do MSM use more illicit substances than heterosexual men?
3. When do MSM use substances? Chemsex?
4. Do MSM have SUD?
5. Is illicit substance use a risk for HIV infection among MSM?
6. Does the use affect HIV prevention measures ?

Summary on research gaps on the above questions

1. What illicit substances are MSM using?



Note: 0= Not available at the paper. Club drugs include ecstasy; ALS= Amphetamine-like stimulants. Cocaine include crack and pasta básica. Methods: RDS=respondent driven sampling; CS=cross-sectional convenience; WS= websurvey. Measures from prior year (12/6/3 months)

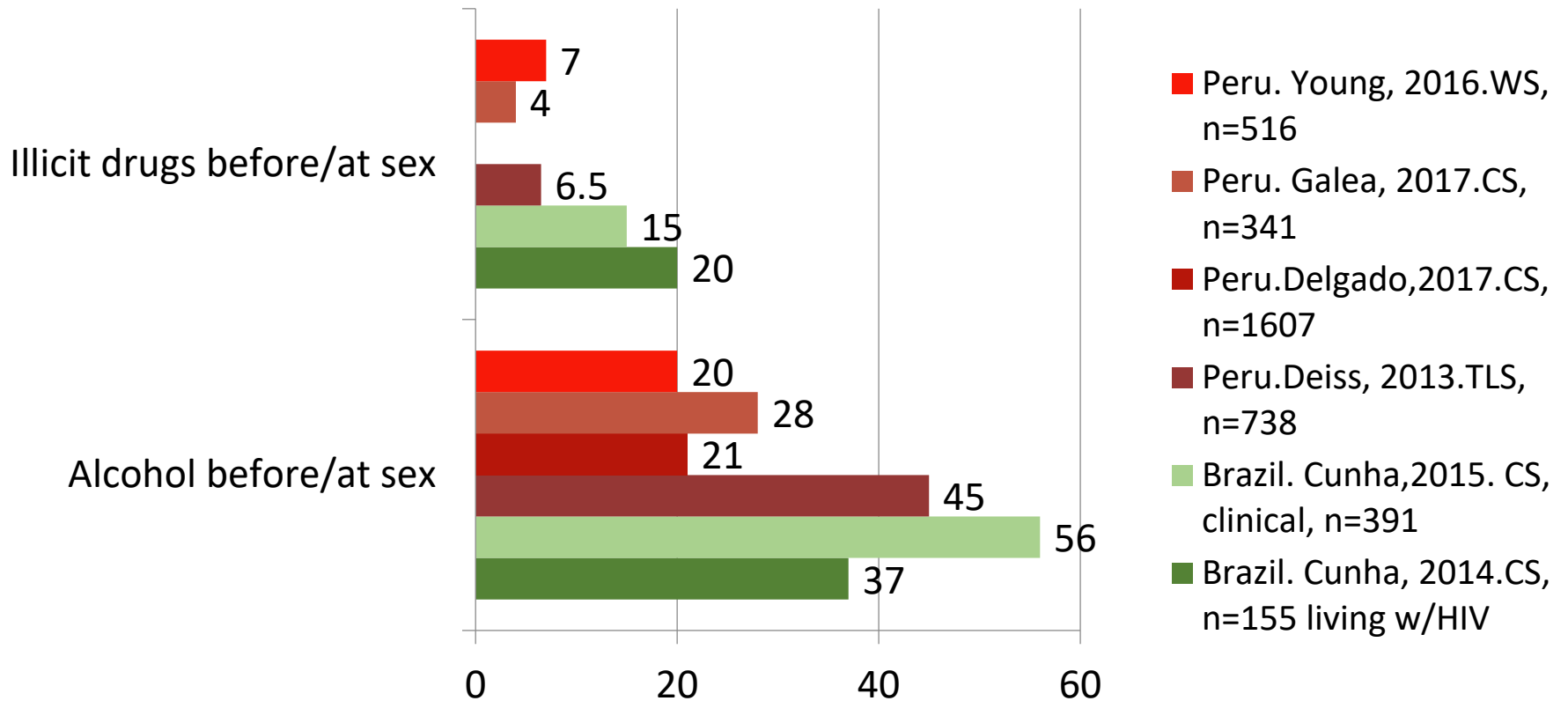
2. Do MSM use more illicit substances than hetero men?

12- month substance use by sexual orientation. III LNUD, Brazil. 2015

	MSM %(SE)	Hetero %(SE)	p-value (Rao-Scott adjustment)
Alcohol	78.1(5.2)	51.5(1.0)	<0.001
Binge	45.6(6.5)	23.9(0.8)	<0.001
Inhalants	3.2(2.3)	0.3(0.1)	<0.001
Ecstasy	4.5(3.0)	0.2(0.1)	<0.001
LSD	1.9(1.9)	0.3(0.1)	0.02
Cannabis	16.7(4.8)	3.9(0.4)	<0.001
Cocaine	3.2(1.7)	1.3(0.2)	0.09
IDU lifetime	3.9(3.1)	0.5(0.1)	0.003

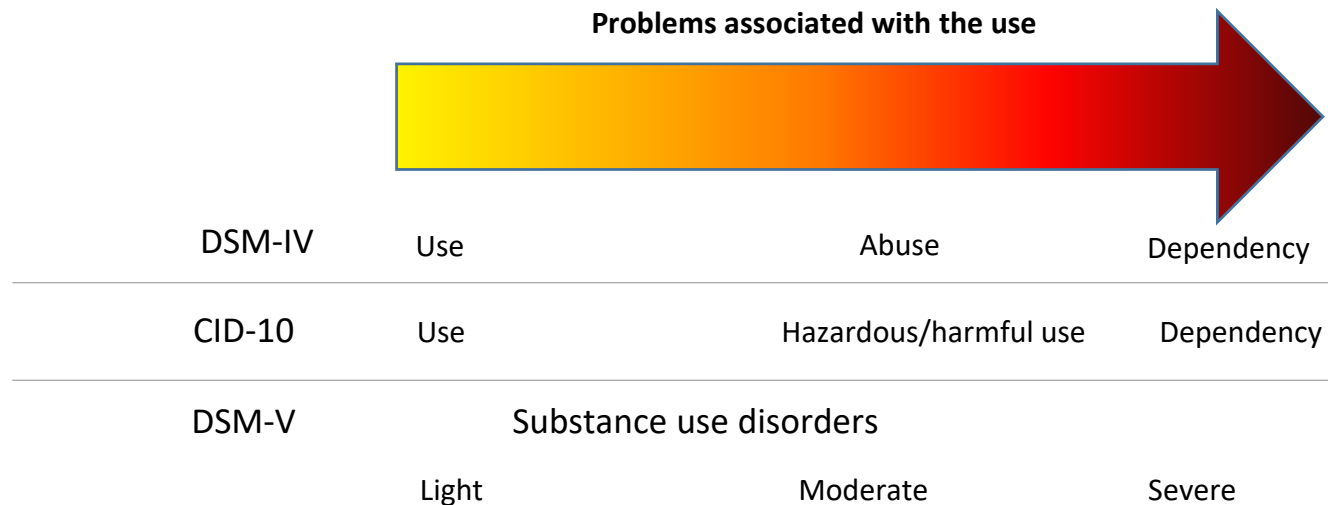
*III LNUD= III Brazilian Household Survey on Substance Use. No statistically significant difference on the use of crack, ketamine, BZD, amphetamines and opioids. N= 6113 (5861 hetero and 87 MSM). MSM= homosexual/gay and bisexual Preliminary results.

3. When do MSM use substances? Chemsex?



4. Do MSM have SUD?

- Not everyone who uses psychoactive substances has a substance use disorder (SUD).



- No studies were found specifically evaluating illicit SUD among MSM from Argentina, Brazil and Peru in the last 5 years

Substance use disorders (12- months) among Gay, Bisexual, Hetero Men in the US NESARC(2004)

	Heavy Drinking	Alcohol Use Disorder	Drug Use Disorder
Gay	18.1%	16.8%*	3.2%*
Bisexual	16.4%	19.5%*	5.1%*
Heterosexual	13.7%	6.1%	0.5%

*Statistically significant differences between Gay/Het and Bisexual/Het

5. Is illicit substance use a risk for HIV infection among MSM?

Controversial results

- Montano et al, JAIDS , 2005:
 - 7 countries, n=13,847 MSM, data from 1999-2002
- Bautista et al, Sex. Transm.Infect, 2004:
 - Same data: Distribution of cocaine use was different across countries, as well as the association with HIV

TABLE 3. Logistic Regression Analysis of Risk Factors Associated With HIV-1 Infection Among MSM by Region in South America, 1999–2002

Risk Factor	Andean Region		Southern Cone Region	
	AOR	(95% CI)	AOR	(95% CI)
No, sexual partners per week				
2 or 3 (none or 1)	1.7	(1.3–2.1)	1.4	(0.8–2.5)
4 or more (none or 1)	3.0	(2.4–3.8)	2.4	(1.4–4.0)
Sexually transmitted infection history (no)	2.3	(2.0–2.6)	1.6	(1.1–2.4)
Sexual contact with foreigners (no)	1.9	(1.6–2.3)	1.6	(1.2–2.2)
Use of drugs (no)	1.4	(1.0–1.8)	1.9	(1.4–2.8)
Use of marijuana (no)	1.1	(0.8–1.5)	1.2	(0.8–1.8)
Use of heroin (no)	0.9	(0.3–3.0)	NA	—
Use of cocaine (no)	1.7	(1.2–2.5)	2.3	(1.6–3.6)
Highest drug use profile				
Non-IDU (none)	1.6	(1.2–2.2)	1.9	(1.4–2.8)
IDU (none)	1.3	(0.4–4.0)	2.9	(0.7–11.4)
Use of alcohol (no)	1.0	(0.7–1.3)	1.0	(0.8–1.4)
Blood transfusion history (no)	0.7	(0.4–1.4)	1.1	(0.5–2.4)

Statistically significant variables are illustrated in boldface.

Categories in parentheses describe the reference category for odds calculations.

NA, not applicable; AOR, adjusted odds ratio by age (y) and country; Andean region indicates Venezuela, Colombia, Ecuador, Peru, and Bolivia; Southern Cone Region indicates Chile, Argentina, Uruguay, and Paraguay.

5. Is illicit substance use a risk for HIV infection among MSM?(cont.)

- Argentina.
 - Segura et al., 2007: 327 MSM **followed** for 12 months: cocaine/SU **not** associated with seroconversion
 - Pando et al, 2003: 694 MSM, cross-sectional, 18% Illicit substance use, **no association** with HIV infection
- Brazil
 - Silva et al., 2012: 1085 MSM, case –control, 10% Illicit substance use. **No association** between Illicit Substance Use and incident HIV
- Peru
 - Lama et al., 2006: 3280 MSM, snowball, cocaine before/at sex **increased likelihood** of HIV

6. Does the illicit substance use affect HIV prevention measures ?

- Most studies **found** association of illicit substance use and condomless sex
 - Argentina: Balan. AIDS & Behavior, 2013
 - Peru: Ludford et al. Plos One, 2013. Caceres et al. 2008; Clark et al., 2007
 - Brasil. Rocha et al. AIDS & Behavior, 2013

Is it related to intoxication?
Exchange of sex for drugs/money?

6. Does the illicit substance use affect HIV prevention measures ?

- PrEP Brazil

Table 2: Factors associated with protective tenofovir concentrations (four or more doses per week) at week 48

	Number of participants	Level indicative of ≥ 4 doses per week	OR (95% CI)*	p value	Adjusted OR (95% CI)	p value
Total	375	277 (74%)
Binge drinking						
Yes	241	179 (74%)	1.18 (0.72-1.96)	0.51
No	134	98 (73%)	1 (ref)
Stimulant use						
Yes	77	67 (87%)	2.30 (1.11-4.75)	0.02	2.23 (1.02-4.92)	0.04
No	298	210 (71%)	1 (ref)	..	1 (ref)	..

AOR controlled for sociodemographics, sexual behavior, depression, receiving SMS, GI symptoms. Stimulant use =cocaine(powder, crack,paste) or amphetamines or club drugs (ecstasy, LSD, GHB and ketamine) in the prior 3 months.

Summary research gaps

- Lack of data/details on the type of illicit substances MSM are using nowadays, and the context of substance use (chemsex?)
- Preliminary data on differences between substance use among MSM and hetero. No recent data on illicit SUD
Do MSM have specific treatment demands?
- Cocaine/alcohol decrease condom use → should PrEP be an option for all?

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