



Strategies to enhance integrated prevention and care for people who use drugs: Lessons learned from HIV Linda-Gail Bekker The Desmond Tutu HIV Centre University of Cape Town February 2020

THE LANCET

Advancing global health and strengthening the HIV response in the era of the Sustainable Development Goals: the International AIDS Society–*Lancet* Commission



"At the very moment when HIV could serve as a pathfinder for global health, there are signs that global commitment to build on the gains achieved against HIV thus far is waning."

In the last 30 years.....



78 million infected, 39 million dead.....



ONE ARV PILL A DAY

The Triumph of Treatment ...



Weber R, et al HIV Medicine 2013

Antiretroviral therapy coverage and number of AIDS-related deaths, global, 2000–2015



HIV: We HAVE come a long way....

WHO announces first country eliminating mother to child transmission of HIV and syphilis

Swaziland: new infections halved in five years as HIV treatment scales up

Rapidly declining HIV infection in MSM in central London

UNAIDS 2020 Targets:

90-90-90: 90% of HIV-positive people aware of their status, of which 90% are on HIV treatment, of which 90% are virally supressed.

23.3 **MILLION** PEOPLE ON HIV TREATMENT BY MID- 2019

UNIVERSAL HEALTH COVERAGE IN HIV #EVERYBODYCOUNTS #MYRIGHTTOHEALTH

on antiretroviral therapy

35

Global Number of new HIV infections, 1990–2018 We will miss the 2020 target

Source: UNAIDS 2019 estimates.

The Prevention Gap: Certain regions.....

Eastern Europe and Central Asia: key populations are sex workers & people who inject drugs

2 HIV-positive sex workers who are also drug users (Ukraine, 2005, Photographer: Brent Stirton) An HIV-positive drug user in the Kiev AIDS centre (Ukraine, 2005, Photographer: Brent Stirton)

Key barriers to prevention incl. legal and structural barriers & social barriers, stigma and discrimination UNAIDS Special Analysis 2016

TRANSGENDER PEOPLE: 49X

INCARCERATED PEOPLE: 5X

Young refugees, migrants, detainees

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Figure 5: Prevalence of HIV infection among people who Inject drugs and in the general population

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Figure 8: Proportion of injecting drug users living with HIV who receive antiretroviral therapy, by region

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FAR FROM OVFR

Three places where "ending AIDS" is a distant hope *p. 1162* The tools exist. HIV/AIDS can be **treated** and **contained**. But in many communities, social, political and economic obstacles **get in the way**.

There, the epidemic is far from over.

"the other 10%"

Science

http://www.sciencemag.org/news/2018/06/nigeria-has-morehiv-infected-babies-anywhere-world-it-s-distinction-no-countrywants http://www.sciencemag.org/news/2018/06/russia-s-hivaidsepidemic-getting-worse-not-better http://www.sciencemag.org/news/2018/06/face-misguided-

response-hivaids-russia-these-bright-stars-are-taking-charge

PBS NewsHour

https://www.pbs.org/newshour/features/end-of-aids-far-fromover/

Treatment as Prevention....

Rodger A, Lancet 2018

In 2018 1 700 000 new infections

>4,600 INFECTIONS EVERY DAY

HIV Prevention 2020 Road Map

Accelerating HIV prevention to reduce new infections by 75%

Differentiated care

is a **client-centred** approach that simplifies and adapts HIV services **across the cascade**, in ways that both serve the needs of people living with HIV PLHIV better and **reduce unnecessary burdens on the nealth system**.

> Grimsrud A et al. Journal of the International AIDS Society 2016, **19**:21484 http://www.jiasociety.org/index.php/jias/article/view/21484 | http://dx.doi.org/10.7448/IAS.19.1.21484

Viewpoint

Reimagining HIV service delivery: the role of differentiated care from prevention to suppression

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PROVIDE INTEGRATED, CO-LOCATED SERVICES FOR HIV AND RELATED HEALTH CONDITIONS

Many diseases and disease areas are closely related to HIV in that they share routes of transmission, have overlapping groups at high risk and/or commonly occur as co-morbidities in people living with HIV.

INTEGRATE SERVICES FOR CHRONICALLY UNDERSERVED POPULATIONS

Find efficiencies to Improve quality and Increase bang for the buck....

infections worldwide

For marginalized and/or underserved populations, a promising approach to integration is to cluster a range of services tailored to each population's needs in the same service site

TAILORED, Client-Centred Prevention Packages

Prevention: Interventions to select for people who inject drugs

Accessible, layered, integrated.

O Needle and syringe programmes (NSPs)

- Opioid substitution therapy (OST) and other evidence-based drug dependence treatment
- IV testing and counselling (HTC)
- O Antiretroviral therapy (ART)
- O Prevention and treatment of sexually transmitted infections (STIs)
- **6** Condom programmes for people who inject drugs and their sexual partners
- Targeted information, education and communication (IEC) for people who inject drugs and their sexual partners
- O Prevention, vaccination, diagnosis and treatment for viral hepatitis
- Prevention, diagnosis and treatment of tuberculosis (TB).

Disease Control

Comprehensive SSPs Reduce HIV Risk And are Nexus for Addressing Substance Use Disorder

SSPs are associated with a **50% reduction** in the risk of HIV

New SSP users 5 times more likely to enter treatment 3 times more likely to reduce drug use

SSP and MAT* Have Worked Together to Control HIV Spread Scott County, Indiana

Engagement in methadone maintenance therapy associated with less time spend with a detectable viral load (*IDU, Vancouver Canada*)

- Longitudinal cohort 867 PLHIV followed from Dec 2005 to Nov 2017
- 60.2% were engaged in MMT at least once during follow up
- Periods of MMT were independently associated with fewer days with viral load above 1500 c/ml (adjusted rate ratio = 0.70, 95%CI: 0.60-0.81)
- Controlled for demographics, drug use patters and CD4 count

Low threshold MMT is an effective intervention in lowering risk of onward viral transmission amongst IDU. <u>Reducing barriers to MMT use is highly likely to</u> <u>improve HIV outcomes and reduce new infections</u>. This should be prioritized.

Barker et al., AIDS 2018 Oral Abstract WEAX0101LB

Comprehensive SSPs Have Broader Benefit to Communities

Support public safety

- SSPs associated with *fewer* sharps in public areas

 In the city without an SSP, after an SPP was implemented, presence of syringes in public places decreased 49%

https://www.cdc.gov/ssp/ (CDC Website, Syringe Service Programs), Levine et al., Drug Alcohol Depend 2019, 202:13-17

Modeled Cost Savings from Averted HIV Infections

HIV can Disseminate very rapidly among PWID

Outbreak of HIV in Greece and Romania

In Greece there were: 2000-2010, 9-19 new HIV cases in IDU (2%–3% of all cases); in 2011, 266 cases in IDU (28% of HIV cases) and in 2012, 547 cases in IDU (46% of HIV cases)

Outbreak of HIV Linked to Oxymorphone in Indiana, USA, 2015

In Scott County, which is a community of 4200 people there have been 173 new HIV Infections since January of 2015

Epidemiology into Policy: Scott County, Indiana

Physicians/Providers

- Screen for substance use
- Test for HIV, HCV, STI
- For HIV, HCV + offer immediate tx
- Provide HBV vaccine
- Naloxone to community
- Drug treatment on demand
- Get licensed to provide OST
- Provide NSEP or refer
- Lobby for law/policy reform

State Actions

- NSEP and legal access to overthe-counter needles
- Screening and referral to free or affordable drug treatment
- Reimbursement for medication assisted therapies
- Provide free HIV testing and initiation of HAART for HIV+ substance users
- Monitor state HIV and HCV epi data to respond to outbreaks early

Threading the Needle — How to Stop the HIV Outbreak in Rural Indiana. *NEJM,* June 2015. Strathdee & Beyrer.
The case of Romania

- Transitional country- low to MIC
- Not considered high enough burden (0.1%)
- Global Fund withdrew in 2010
- Prevalence in PWID community

3% in 2010 29% in 2013

40% of global infections: KPs2 % of all HIV funding9% of all Prevention funding





The expanding epidemic of HIV-1 in the Russian Federation. PLoS Med; Dec. 1, 2017

HIV

- 2017 Russia had the largest number of HIV infected citizens in Europe
- Cumulative HIV diagnoses over 1.16 million by mid-year 2017
- Over 103,000 new HIV diagnoses in 2016: a 5% increase over 2015
- Among Russian men aged 30-39 years of age, 2.8% living with HIV

AIDS

- From Jan-June 2017, 14,631 deaths due to AIDS recorded: 13.5% increase over previous 6 months
- AIDS now in top 10 leading causes of premature death

RESPONSES



43% of countries with injecting populations do not have needles and syringe exchange programs.

therapy, 2015

60

50

40

30

20

10



Source: 2016 Global AIDS Response Progress Reporting; UNODC. World Drug Report 2016.

Asia and the

Pacific

Eastern Europe

and central Asia

Eastern and

southern Africa

Western and central

Europe and North

America

Middle East

and North Africa

Latin America and

the Caribbean

"Because of **bad policies** that reflect ideology and bias rather than science, those most vulnerable to HIV are deterred from accessing the services they need."

2012 Society's Child

Integration of HIV and other health services: modelled scenarios



Figure 13: A multicountry modelling exercise to study the effect of HIV integration in various settings NCDs=non-communicable diseases. MSM=men who have sex with men. FSW=female sex workers. ART=antiretroviral therapy.



Russia

Background

- HIV in Eastern Europe/Central Asia
 - Only world region where epidemic expanding
 - Most new infections occurring

in Russia

- Driven primarily by injection drug use
- Particular concern in Siberia and Urals
 - HIV outbreaks occurring in Siberian region with new diagnoses ranging from 130-230 per 100,000 in 2016¹

Patients undergo drug detoxification while handcuffed to their beds at a programme for heroin addiction in Ekaterinburg, Russia



Photo credit: Brendan Hoffman

Russia: HIV prevention among people who inject drugs

- Policies fueling HIV transmission among PWID in Russia
 - Non-naltrexone medication assisted therapy (MAT) illegal
 - Needle syringe programs (NSP) legal but coverage minimal
 - 1-3 syringes exchanged/PWID/year
 - Substantial decline after Global Fund withdrawal in 2010
 - Low ART coverage among PWID
- Limited epidemic modeling of HIV among PWID in Russia
 - One study indicates scale-up of harm reduction could have large impact on HIV epidemic among PWID in St. Petersburg²



Russia: Aim of the modelling

 To model the potential impact of scaling up of HIV prevention interventions (MAT, NSP, ART) on incidence of HIV and fatal opioid overdose among PWID in two epidemiologically distinct settings in the Siberian and Ural regions of Russia



Russia: Modelled Settings

- Omsk, Russia (Siberia)
 - Increasing HIV prevalence among PWID
 - 9% in 2009, 17% in 2011, 19% in 2015
- Ekaterinburg, Russia (Ural)
 - Stable, high HIV prevalence among PWID
 - 34% in 2001, 63% in 2007, 59% in 201¹, 65% in 2014



Russia: Modelled scenarios

- 1. Base case: no harm reduction, 26% ART coverage in 2014
- 2. NSP only: scaled-up in 2018 to reach 50% coverage
- 3. MAT only: scaled-up in 2018 to reach 25% coverage
- 4. MAT only: scaled-up in 2018 to reach 50% coverage
- 5. NSP+MAT (integrated HR): NSP+MAT intervention scaled-up in 2018 to reach 50% coverage
- 6. Integrated HR plus ART expansion: NSP+MAT scaled-up in 2018 to reach 50% coverage, triple ART recruitment rate among all HIV-infected PWID

Russia: Intervention effects and assumptions

• NSP

Reduces injecting HIV transmission risk by 34% and by 58% in high-income settings

• MAT

- Reduces injecting HIV transmission risk by 44%
- Reduces ART loss to follow-up rate by 23%
- Reduces overdose mortality by about 80%
- ART
- Increased life expectancy
- Decreases sexual transmission risk by 90%
- Decreases injecting transmission risk by 50%



Russia: Model projections of impact of integrated harm reduction and HIV services on HIV prevalence among PWID





Russia: Proportion of HIV cases averted in two Russian cities in 10 years



- Scale-up of either NSP or MAT to 50% coverage could avert a median of ~35% new HIV infections in Omsk and ~20% in Ekaterinburg by 2028.
- Scale-up of NSP+MAT to 50% combined with ART scale-up (to 65% coverage by 2028) could avert 53% HIV infections in Omsk and 36% in Ekaterinburg over a decade.

IAS Lancet Commission 2018

Russia: Proportion of opiod overdose deaths averted in 10 years

High coverage (50%) of non-naltrexone D MAT could avert about one-third of fatal 70-Overdose deaths averted, 2018-28 (%) opioid overdoses in both settings 60-50-32 40-32 31 30-17 20-10-0 NSP+MAT (50%) MAT MAT NSP+MAT intergrated ART (25%) (50%)(50%) Scenario

Modelling conclusion for Russia



by extending non-naltrexone MAT and NSP, in conjunction with ART, to reach 50% of people who inject drugs.

Whilst enhancing general health...

Substance use outcomes, death from opioid overdose.

PrEP for People who Use Drugs...



	Effect size (95% Cl)
Prevention in injecting drug users Bangkok tenofovir study: daily oral tenofovir (injecting drug users in Thailand)	49% (10 to 72)
Prevention of mother-to-child transmission PACTG076: zidovudine to mother during pregnancy and labour and infant (HIV-positive pregnant women in USA and France)	— 68% (40 to 82)
Thai AZT trial: zidovudine to mother during pregnancy and labour (HIV-positive pregnant women in Thailand)	50% (15 to 71)
HIVNET012: single dose nevirapine to mothers and infants (HIV-positive pregnant women in Uganda)	41% (16 to 59)
DITRAME: zidovudine to mother during pregnancy, labour, and post partum (HIV-positive pregnant women in Côte d'Ivoire and Burkina Faso)	38% (5 to 60)
Africa AZT: zidovudine to mother during pregnancy and labour (HIV-positive pregnant women in Côte d'Ivoire)	37% (-5 to 63)
Sexual transmission prevention Partners PrEP: daily emtricitabine and tenofovir (serodiscordant couples in Kenya and Uganda)	
Partners PrEP: daily oral tenofovir (serodiscordant couples in Kenya and Uganda)	- 67% (44 to 81)
TDF2: daily emtricitabine and tenofovir (heterosexual men and women in Botswana)	— 62% (22 to 83)
iPrEX: daily emtricitabine and tenofovir (men who have sex with men in the Americas, Thailand, and South Africa)	44% (15 to 63)
CAPRISA 004: coital tenofovir gel (women in South Africa)	39% (6 to 60)
MTN003/VOICE: daily tenofovir gel (women in South Africa, Uganda, and Zimbabwe)	15% (-21 to 40)
FEMPrEP: daily emtricitabine and tenofovir (women in Kenva, South Africa, and Tanzania)	6% (-52 to 41)
MTN003/VOICE: daily emtricitabine and tenofovir (women in South Africa, Uganda, and Zimbabwe)	-4% (-49 to 27)
MTN003/VOICE: daily tenofovir (women in South Africa, Uganda, and Zimbabwe)	-49% (-129 to 3)
-130 -60 -40 -20 0 20 40 60	80 100
Effectiveness (%)	

PrEP Effectiveness



- Based on 12 randomized trials (placebo/no PrEP)
 - Overall RR 0.5
 - Better adherence : RR 0.3
 - male/rectal: RR 0.3
 - Female/Vaginal: RR 0.5
 - >25 yrs: RR 0.4
 - <25yrs: RR 0.7



Recommendation

Oral PrEP containing TDF should be offered as an additional prevention choice for people at substantial risk of HIV infection as part of combination HIV prevention approaches (strong recommendation, high-quality evidence).

NEW

Oral PrEP Initiations – 7 Years On

PrEP Initiations by Country, October 2019



First generation PrEP



Note: NON-EXAHUSTIVE; (1) projects in Kenya, Uganda, South Africa, Senegal, Benin, India, Nigeria – enrolling an average of 1,000; (2) Bridge to Scale Implementation Project (Jilinde Project in Kenya, aiming to enroll 20,000; (3) DREAMS introduces PrEP in 5 countries Thanks AVAC

Demo projects not well timed to inform decision making after regulatory approval

Since programme inception to date, over 33k individuals have been initiated on PrEP





Oral PrEP Implementation Prevention cascade | all site, by site type 2016-2019

Oral PrEP uptake continues to vary since the onset of the programme, between **sex worker-focused sites (19%), MSM-focused sites (43%)** and **AGYW-focused clinics (38%).**



Expansion Oral PrEP to increase impact



Provide PrEP in 52 districts in 9 provinces in all ~3,456

In 2020: +660 000



PrEP will integrate into all public primary health clinics where a comprehensive package of primary health care services is already provided.

Key inputs for estimating PrEP Targets:

• **DHIS**: Catchment pop. sizes from 3,139 public clinics, disaggregated by age & gender



- ICL/UCT model: District-level prevalence & incidence, disaggregated by age and gender
- Thembisa: Oral PrEP effectiveness in heterosexual men & women
- **RSA PrEP Program M&E**: Weighted average of uptake & continuation trends from public sites implementing PrEP
- **RSA tender**: TDF/FTC cost per pack (28 pills per pack)

PrEP and ART of the future...

Formulations – fit to purpose & suited to varying personal choice



Active Ingredients – alone & in combination to provide depth

Double cascade approach



50

Α

Test & Treat strategies strengthen this even more so.



Scaling Up PrEP Access in Major Cities Has Resulted in Population-Level Reductions in HIV Risk, among PrEP Users and Non-Users Combined



Buchbinder SP, et al. 25th CROI. Boston, 2018. Abstract 87. Seattle & King County and the Infectious Disease Assessment Unit. HIV/AIDS Epidemiology Report 2017, Volume 86. Nwokolo N, et al. *Lancet HIV*. 2017;4:e482-e483. Grulich A, et al. *Lancet HIV*. 2018;5:e629-e637.







Scale up of antiviral drugs worldwide.....

"If we can bring a bottle of Coke to every corner of Africa, we should be able to also deliver antiretroviral drugs..."

Prof. Joep Lange



Fast Food – something that can be **organised and served faster** than when using traditional methods.



Developing countries are driving fast food production, where people are increasingly urbanised, entering busy city lifestyles and need quick, easy access to low cost food.

This is possible because of *improved supply chain management* and improved *technology*.



Top Reasons People Eat Fast Food:

In order

- 1. Quick service
- 2. Outlets are easy to get to
- 3. Food is likeable!
- 4. and cheap
- 5. Easy when too busy to cook or don't
 - like cooking
- 6. It's a way of socialising with friends
 - and family
- 7. There is a lot of choice
- 8. Can be consumed in car, home, office



This is the modern lifestyle – why not apply to prevention services too!

- 1. Quick service at clinics and mobiles: no long queues!
- 2. Services are convenient & easy to get to
- 3. Likeable....adds to quality of life, doesn't detract.
- 4. It's cheap (or free)
- 5. Accommodates busy lifestyles including those who can't make it to the clinic
- Fits in with socialising- doesn't create division and abnormality.
- 7. There is a lot of choice: different prevention options for different people. No one size fits all!
- 8. Prevention services are often best served outside of conventional facility based models.

Mobile Services can do tailored, integrated, layered, accessible, hassle-free HIV and SRH care



Patient-centered care



Comprehensive, integrated services
Service Accessibility.....





vention Options for men Evaluation Research









Dean Street Express Clinic, London. "we want people without symptoms to order home tests now'



Novel Delivery Systems – NSS Vending Machines



Syringe vending machine in Puerto Rico Photo credit: Missy Thomas Proctor

"Pluses"

- Stand-alone units
- Usually free or nominal charge
- Usually less costly to run than a staffed SSP
- Anonymous, less stigmatizing
- Useful for rural or off-hours

"Minuses"

- Less contact with other services
- Community concerns (e.g., children, vandalism)
- Community and political resistance as well as legal barriers
- Siloed service delivery
 - Limited models for integrative professional cross-training

Ending the HIV Epidemic





Community-led services

Services led by peers and KP CBOs increase access to HIV prevention and treatment

- More than half of people tested by KP CBOs in Vietnam were first-time testers, and 90% of those diagnosed enrolled in treatment (Ngo, THAC0202)
- In Malawi, HCP training and differentiated service delivery increased case finding and linkage among FSW and MSM (Kamanga, THAC0201)
- At a Bangkok sexual health clinic employing KP staff, 79% of diagnosed patients received same-day ART and 90% were successfully referred to long-term ART care (Seekaew, THAC0203).

Differentiated services to address unique needs of KPs

 At Bangkok's Tangerine Clinic, TGW accessing hormone therapy were more likely to repeatedly test for HIV and to access PrEP (Janamnuaysook, THAC0204)

Track E Rapporteur team AIDS2018



Community-led prevention : providing combination prevention including preexposure prophylaxis to their peers in Thailand



Photo credit: © Richard Nyberg, USAID.

IAS Lancet Commission 2018



Peer-led :

Person centred care means meaningful engagement: inclusion, codesign, cocreation, ongoing input and critical review!











A one size model does not fit all when it comes to HIV or other services.

Differentiated Models of Care

Takes different populations into account Reflects the preferences and expectations of a specific population group Adapts services for this group Innovates and involves the group





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