

Reducing HIV Incidence among People Who Inject Drugs in Ukraine: Results from a Peer-Based Intervention

R. Booth, J. Davis, S. Dvoryak,
J. Brewster, S. Strathdee, C. Latkin

Background

- High prevalence of HIV among people who inject drugs (PWID) in Ukraine.
- PWID in Ukraine typically engage in high-risk drug use behaviors.
 - Sharing the drug solution
 - Sharing drug preparation equipment
- PWID in Ukraine are highly stigmatized and marginalized but not difficult to recruit with indigenous outreach workers.



Vilnius ★ Lithuania

©GraphicMaps.com

Poland

★Minsk

200 mi

Belarus

200 km

★Warsaw

Russia

Slovakia

Luts'k

Chernobyl

Chernihiv

Desna River

Zhytomyr

★Kiev

Kharkiv

Dnieper River

Donets River

L'viv

Luhans'k

Carpathian Mtns.

Kirovohrad

Dnipropetrovs'k

Chernivtsi

Southern Bug

Donetsk

Uzhhorod

Zaporizhzhya

Hungary

Chisnau ★

Mykolayiv

Mariupol

Moldova

Odesa

Crimean Peninsula

Sea of Azov

Romania

Sevastopol

Yalta

Bucharest ★

Black Sea

Bulgaria

Turkey

worldatlas

Methods

- 2304 PWID in Odessa, Nikolayev and Donetsk were recruited for a randomized clinical trial comparing two interventions in reducing HIV incidence and HIV-related risk behaviors.
 - Eligibility requirements – 16 years of age or older; self-reported drug injection last 30 days; willing to be interviewed for 1 hour and tested for HIV
 - 768 “index” or peer leaders; 1536 wave network members
 - The HIV negative group was a subset of the total group
 - Participants were followed longitudinally and interviewed and tested for HIV at:
 - Baseline, 6 month, and 12 month time points.

Recruitment

- Index participants were recruited by recovering drug users serving as outreach workers at the three NGOs.
- Indexes were required to bring 2 members of their injecting network to be eligible.

Control Intervention:

HIV testing and Counseling (C & E only)

- Updated version of Counseling and Education (C&E) used in NIDA's Cooperative Agreement.
- Participants were counseled regarding reducing HIV risk behaviors and tested for HIV.
- Slight modifications were necessary to address unique drug use risk behaviors of PWID in Ukraine (e.g., injecting with a preloaded syringe).

Additional Intervention; Peer Leader (C & E Plus)

- Testing and counseling as in C & E only, but with additional peer-leader intervention training.
- Peer leader intervention was based on social learning, social identity, social norms and social diffusion.
- 5 sessions with 8 indexes over a two-week period.
- Goal was to train peer leaders to educate their network members in reducing HIV risk behaviors.

Analytical Methods

- Calculated HIV incidence density, overall and between intervention groups.
- Utilized cox proportional hazards regression with a generalized estimating equation (GEE) extension.
- Followed with longitudinal analyses of HIV risk behaviors using nested linear and generalized linear models.

Results

Participants

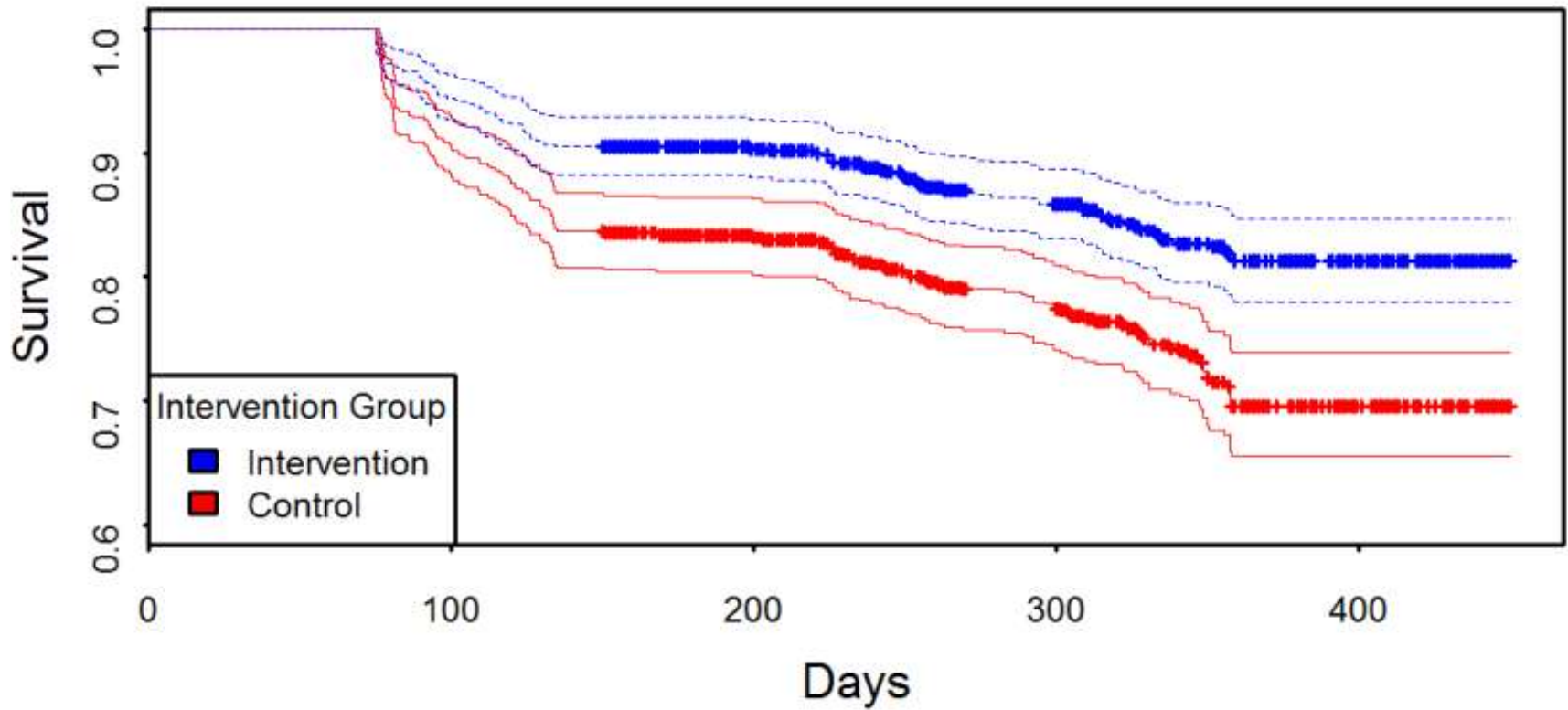
- 1200 HIV negative PWID at baseline (59.6%)
- 1085 (90.4%) re-interviewed at the final 12 month visit
 - 31.8 years old on average
 - 20.2 years old at age of first injection
 - 421 (35.1%) in Odessa
 - 363 (30.3%) in Donetsk
 - 416 (34.7%) in Nikolayev
 - 75% male
- No differences in HIV risk behaviors or other characteristics were found between intervention arms at baseline.

Incidence Density

- By the 12 month follow-up, 260 HIV seroconversion events occurred among 1,049.7 person-years
- Overall HIV incidence was 24.8 events (95%CI 21.8, 27.8) per 100 person years.
- C & E only arm incidence was 31.8 events (95%CI 26.9, 36.8) per 100 person years.
- C & E plus arm incidence was 18.4 events (95%CI 14.8, 22.0) per 100 person years.

Kaplan Meier Survival

($p < 0.001$ log rank test)



Univariate Hazard Ratios

	HR	95% CI	P-value
C & E plus peer intervention	0.58	(0.43, 0.78)	p<0.001
Years injecting	1.04	(1.03, 1.05)	p<0.001
Age	1.04	(1.03, 1.06)	p<0.001
Past 30 day injection frequency (for every 10 injections)	1.09	(1.05, 1.13)	p<0.001
More than one sexual partner in last 30 days	0.59	(0.46, 0.77)	p<0.001
Nikolayev vs Donetsk	0.46	(0.33, 0.66)	p<0.001

Multivariate Cox Proportional Hazards

	HR	95% CI	p-value
C & E plus peer intervention	0.59	(0.44, 0.79)	<0.001
Age	1.05	(1.03, 1.06)	<0.001
Past 30 day injection frequency (for every 10 injections)	1.05	(1.005, 1.09)	0.03
More than one sexual partner in last 30 days	0.74	(0.56, 0.97)	0.03
Odessa vs Donetsk	0.69	(0.50, 0.95)	0.02
Nikolayev vs Donetsk	0.38	(0.26, 0.57)	<0.001

Secondary Analytical Outcomes

- Increased Utilization of Needle Exchange Programs
 - At the 6 month interview, those in the peer intervention arm reported 53.2% ($p < 0.001$) more frequent use of NEPs than C & E only participants
 - At the 12 month interview, peer intervention participants had 16.8% ($p = 0.002$) more frequent use of NEPs than those in C & E only
- Some indication of reduced sex risk behavior
 - At 12 month OR 0.63 ($p = 0.019$) in experimental intervention verses control

Conclusions

- Very high HIV incidence in cohort (24.8 per 100 person years)
- 42.1% reduction in incidence in the peer led intervention arm, however, incidence still quite high at 18.4 per 100 person years
- Increased utilization of needle exchange programs in the peer led intervention likely drove reduction in incidence.

Acknowledgements

- We would like to thank the NGO staff and directors, including Olga Kostyuk and Tatiana Semikop in Odessa, Elena Goryacheva in Nikolayev, and Dmitriy Kryzhko in Donetsk
- We also thank the participants who gave their time, without which this study would not have been possible.
- Support for the study came from the National Institute on Drug Abuse (RO1 DA026739)