

HIV TREATMENT CASCADE IN UKRAINE: A CROSS-SECTIONAL ANALYSIS OF REGIONAL PATTERNS IN 2015

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BACKGROUND:



Table 1. Regional HIV Epidemiology and Infrastructure, RESPOND Target Regions, 2015

Regions	Population	HIV prevalence per 100,000 population	Newly registered HIV cases per 100,000 population	Number of VCT performed per 100,000 population	Number of ART sites	Number of beds for inpatient treatment in AIDS centers	Number of MAT sites
Dnipropetrovsk	3 273 328	774,0	88,2	7 528	37	30	18
Mykolayiv	1 163 627	676,2	74,3	8 591	9	30	11
Kyiv City	2 846 667	407,0	45,2	6 923	3	45	7
Kyiv Region	1 723 455	330,9	56,2	4 568	11	-	4
Odesa	2 385 382	821,5	99,5	6 451	34	50	4
Kherson	1 066 444	378,8	48,9	5 697	10	-	6
Zaporizhzhya	1 765 137	231,0	32,6	7 207	7	30	5
Ukraine (total)	42 759 661	297,2	37,0	5 491	235	354	172

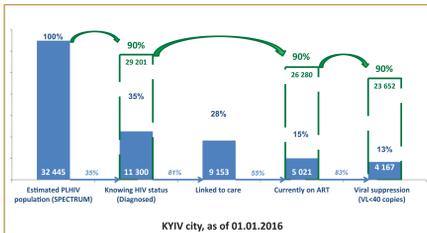
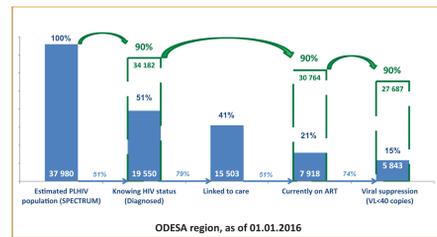
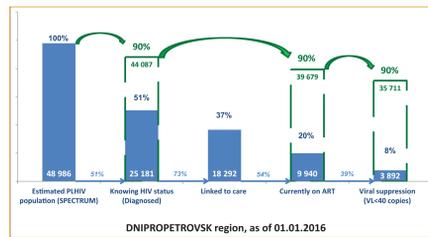
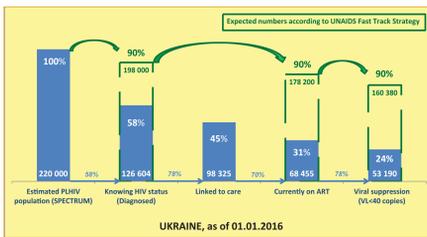
- The HIV epidemic in Ukraine is the second biggest among the Eastern European and Central Asian (EECA) countries. Of the total number of people living with HIV (PLHIV) in the EECA region, 19% live in Ukraine. Ukraine accounts for 25% of AIDS-related deaths estimated for the Eastern European and Central Asian countries.
- HIV cases are not evenly distributed across the nation. The four regions currently not controlled by Government of Ukraine (The Crimea, city of Sevastopol, parts of Donetsk and Luhansk regions) had accounted for 30% of PLHIV, but were excluded from national surveillance since 2014. Of the remaining 23 regions, 5 with the highest HIV burden (Dnipropetrovsk, Mykolayiv, Odesa, Kyiv City, and Kherson) account for 58% of PLHIV, and 6 medium burden regions (Cherkasy, Poltava, Chernihiv, Zaporizhzhya, Kirovohrad, and Kyiv) account for an additional 21% of PLHIV.
- The USAID RESPOND Project works in 7 high and medium burden regions: Dnipropetrovsk, Mykolayiv, Odesa, Kyiv City, Kyiv, Kherson and Zaporizhzhya. Together with local partners, RESPOND implements quality improvement (QI) activities to enhance the continuum of government and NGO HIV services.
- While the Government HIV surveillance in Ukraine is well developed, routine analysis of the HIV treatment cascade has not yet been used as a tool to assess the gaps between testing and viral suppression.
- Before designing its QI activities, RESPOND conducted a study to assess the heterogeneity of regional cascades for PLHIV and their relation to UNAIDS' Fast Track targets: 90% of PLHIV know their HIV status, 90% of PLHIV who know their status are receiving ART, and 90% of PLHIV on ART have viral suppression.
- We hypothesized high heterogeneity of HIV service cascades across 7 RESPOND regions taking into account varying health infrastructure (Table 1) and varying system efficiencies, including access to AIDS centers, ART sites, MAT sites, harm reduction services etc.

METHODS:

- Pooled data from the 2015 regional routine HIV/AIDS surveillance and estimates from the Spectrum 2015 software package.
- Built national and regional cross-sectional HIV service cascades
- Compared HIV cascade data with corresponding UNAIDS' Fast Track targets.
- Performed chi-square test to measure regional differences in cascade indicators with p-value of <0.05 considered statistically significant.

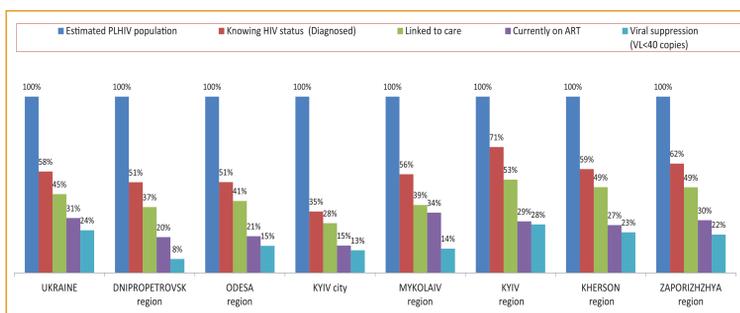
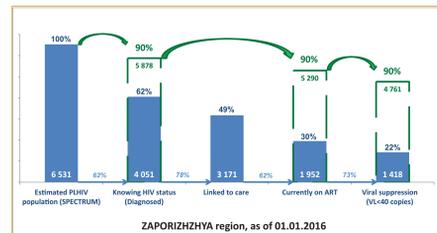
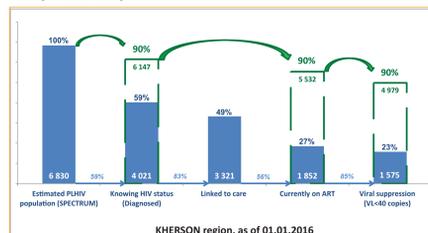
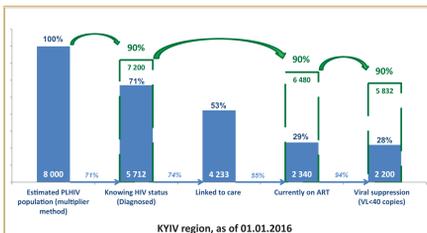
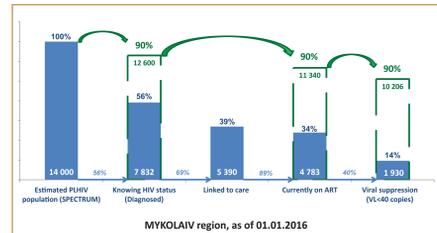
RESULTS:

National and regional HIV service cascades



Graph Key:

- Estimated PLHIV Population:** estimated number of PLHIV from the Spectrum 2015 software package (for Kyiv region by multiplier method);
- Known HIV positive status (diagnosed):** the number of individuals informed as the HIV cases, excluding cumulatively registered number of AIDS deaths (data source: routine government surveillance data).
- Linked to care:** defined as 'active clinical group' which means the individual had at least one medical examination during the past 12 months (data source: routine government surveillance data).
- Currently on ART:** defined in Ukraine that an individual has not missed the most recent appointment within the last 3 months. In Ukraine, the number of those reported by AIDS Centers to UICDC through regions, including both adult and pediatric cases, at aggregation level (data source: routine government surveillance data)
- Viral suppression (VL<40 copies):** an estimated number of PLHIV who are on ART and have undetectable viral load (<40 RNA copies/mL). The estimation source is the number of blood samples tested for viral load. The assumption is that only one test is done per PLHIV per year, and those tested are a representative sample of PLHIV on ART.



- On the national level, 58% of the estimated number of PLHIV in Ukraine are diagnosed and enrolled in care; 31% of PLHIV are on ART; 24% of PLHIV have undetectable viral load.
- Results demonstrate significant regional differences of the size of gaps in the HIV care continuum, and gaps against the "90-90-90" targets. The proportion of PLHIV who know their HIV status ranges from 35 to 71% of the estimated number of PLHIV in the region. The proportion of PLHIV on ART varies from 15 to 34%. While over three quarters of those on ART have undetectable viral load, only 8-28% of the estimated PLHIV population are virally suppressed. All differences are statistically significant ($p < 0.001$).

CONCLUSIONS

- The most important and major gap along the HIV service cascade in Ukraine is in detecting PLHIV and enrolling them on ART.
- Heterogeneity of cascades across target regions was confirmed. Enrolment into care, treatment coverage and viral suppression were the lowest in the capital (Kyiv City), whereas the highest rates were observed in Kyiv and Zaporizhzhya regions.
- Achieving the Fast Track targets by 2020 remains challenging in Ukraine. Regional expected numbers for enrolment into care were 1.3 (Kyiv region) – 2.6 (Kyiv city) times greater than the numbers observed in 2015; regional expected ART coverage was 2.4 (Mykolayiv region) – 4.0 (Dnipropetrovsk region) times greater than 2015 numbers.
- Further research is needed to understand structural, societal and individual factors influencing the gaps in the continuum of testing to care.
- Poor data quality.
- National cascade numbers do not include data from the Russian-controlled Crimea and conflict areas in Eastern Ukraine.
- There is no consensus around regional PLHIV population estimates, which serve as the basis for cascade analysis. Estimates produced by Spectrum modeling, multiplier method or expert opinion are used by different stakeholders.

Future implications:

- Although the size of gaps in the HIV care cascade differs across regions in Ukraine, all regional programs should prioritize detecting PLHIV and early provision of ART.
- Improvement of regional cascade data quality is required through:
 - Consensus with regional stakeholders on the estimated numbers of PLHIV and regional targets;
 - Validation of regional PLHIV size estimates; and
 - Implementation of a standardized electronic PLHIV tracking system (management information system).

Limitations:

- Cross-sectional representation of the longitudinal process of engagement in care. Cohort cascades would present a more accurate picture, but cohort data are not available.
- Treatment numbers were limited by national criteria for ART: initiation at $CD4 < 350$, which was changed to $CD4 < 500$ in December 2015.