HIV treatment cascade analysis for people who inject drugs in Ukraine: identifying the correlates of HIV care outcomes

Kostyantyn Dumchev[1], Olga Varetska[2], Tetyana Salyuk[2], Charles Vitek[3]

[1] Ukrainian Institute on Public Health Policy, Kyiv, Ukraine
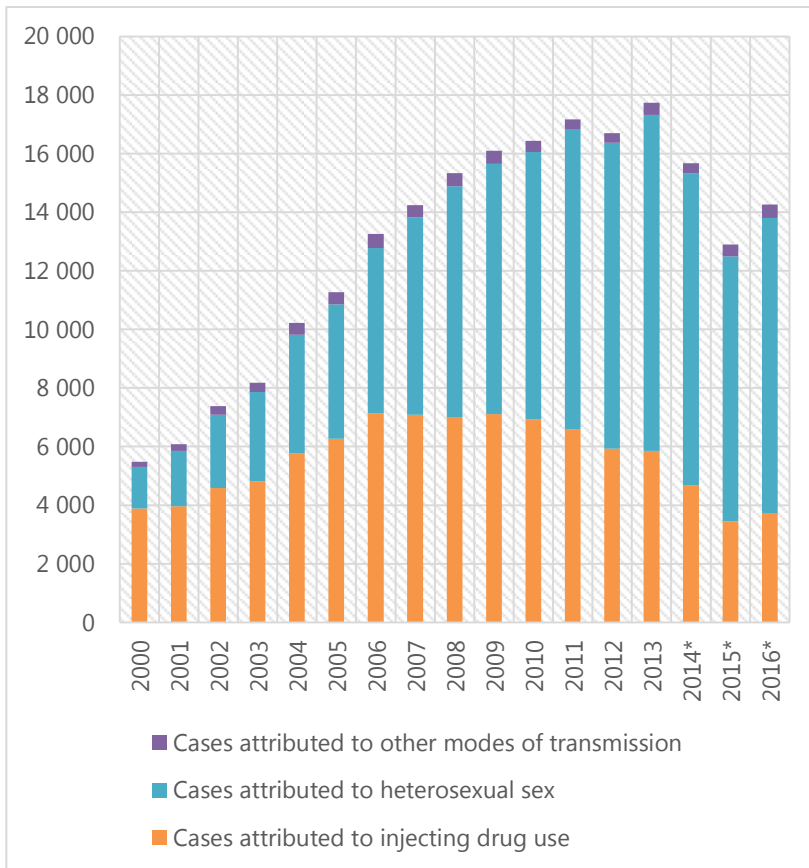
[2] Alliance for Public Health, Kyiv, Ukraine

[3] U.S. Centers for Disease Control and Prevention, Kyiv, Ukraine

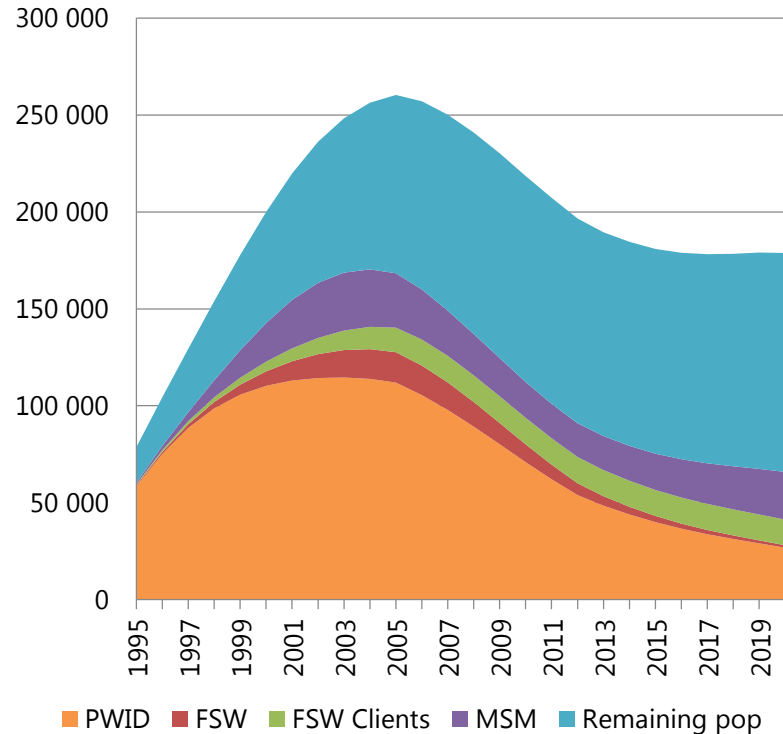UIPHP UKRAINIAN INSTITUTE ON PUBLIC HEALTH POLICY

Conflict of Interest

• No conflicts of interest to declare

UIPHP

Background: contribution of PWID to the epidemic in Ukraine

Number of newly registered HIV cases (National statistics)

Legend:
- Cases attributed to other modes of transmission
- Cases attributed to heterosexual sex
- Cases attributed to injecting drug use

Number of people living with HIV (Spectrum model)

Legend:
- PWID
- FSW
- FSW Clients
- MSM
- Remaining pop

UIPHP

Background: PWID population

Chart: "On ART total" (blue) and "On ART PWID" (orange), 2009–2016*

| Year	On ART total	On ART PWID
2009	15871	1194
2010	22016	1732
2011	26720	2192
2012	40350	3811
2013	53163	6007
2014	64405	7025
2015*	60753	6575
2016*	74780	7472
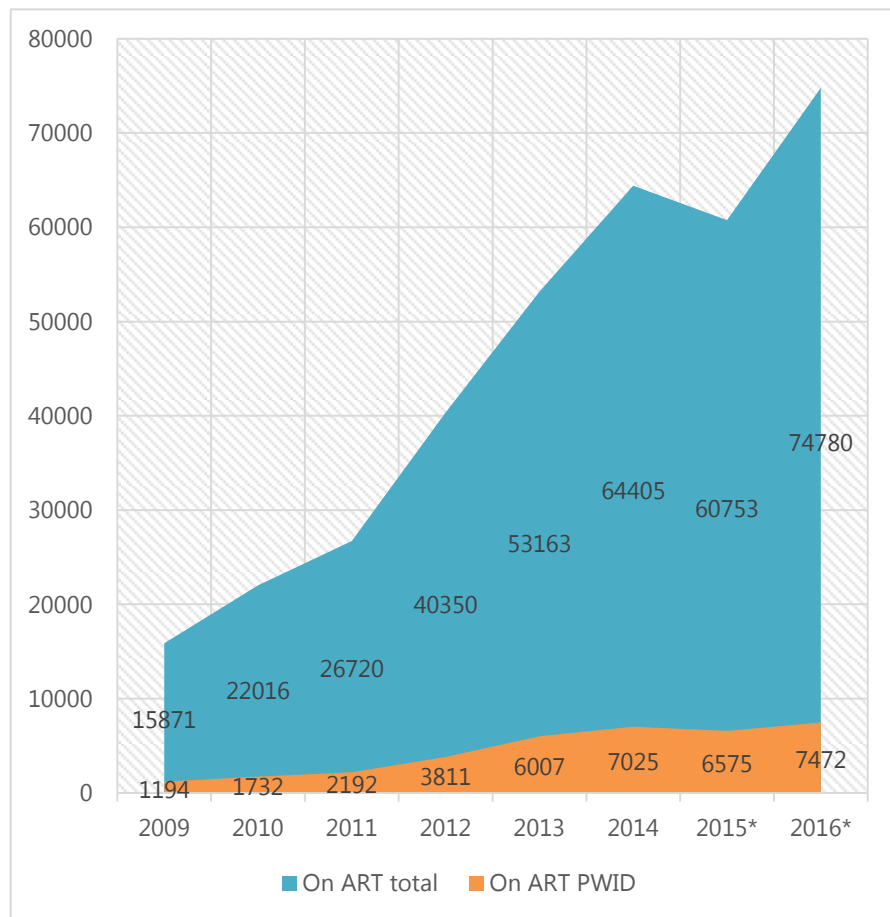
- Population size estimate 355,000 (2013)
- HIV incidence 1.85/100 person-years (2015 cohort data)
- HIV prevalence 22% (2015 IBBS)
  - 78,247 PWID living with HIV
- 7,472 receive ART (official program data)
  - No standard PWID definition or ascertainment method exists in clinical reporting system
  - Often PWID status based on registered mode of transmission
  - Prone to underreporting/ misclassification

UIPHP

Methods: data source

IBBS in Ukraine

- Bi-annual surveys
- Include three KPs (PWID, MSM, CSW)
- National samples
- RDS recruitment for PWID since 2007

- 2015 data were used for cascade calculation
  - RDS weights not used
- Multivariable logistic regression to determine correlates of cascade indicators
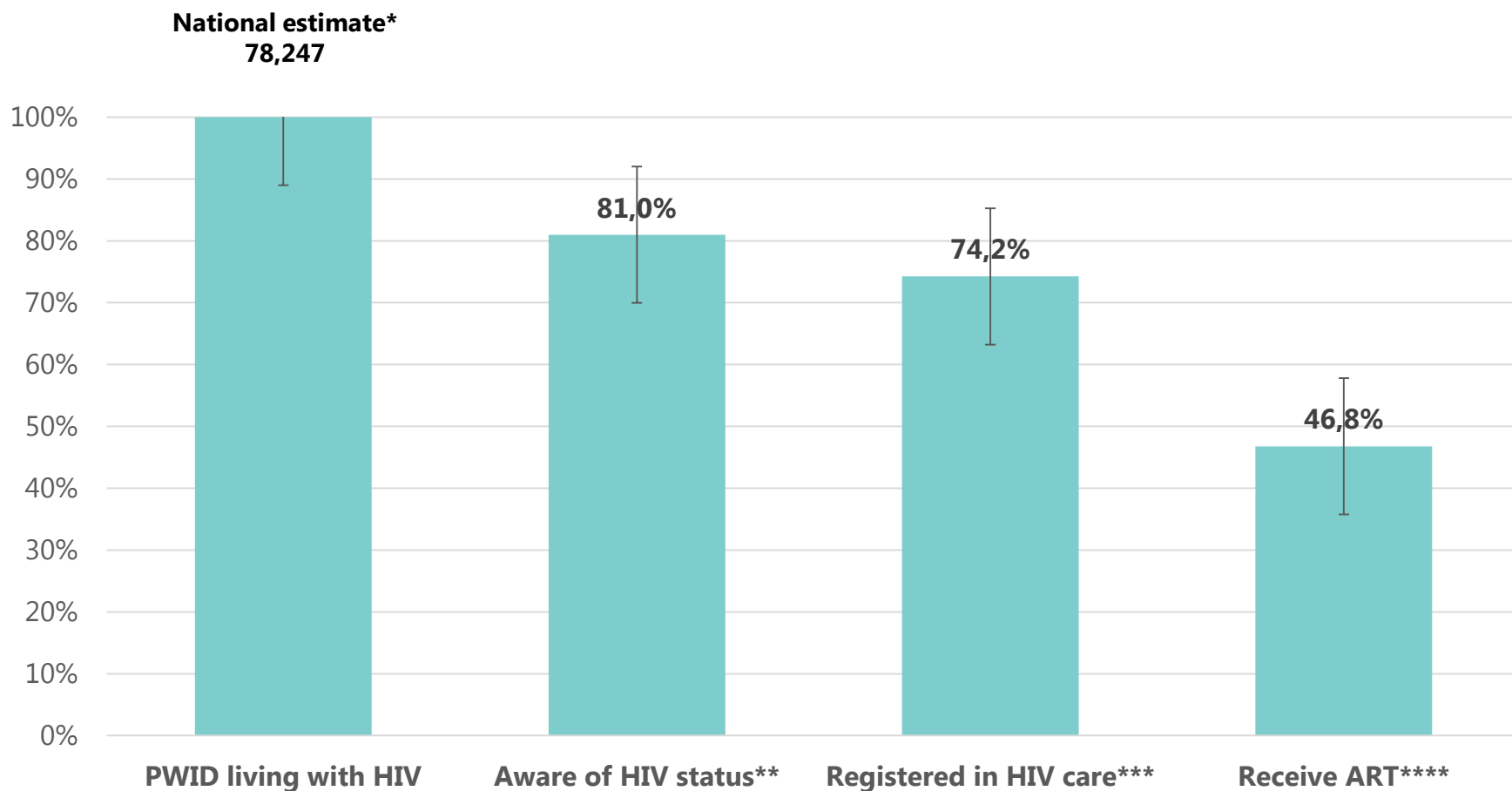

UIPHP
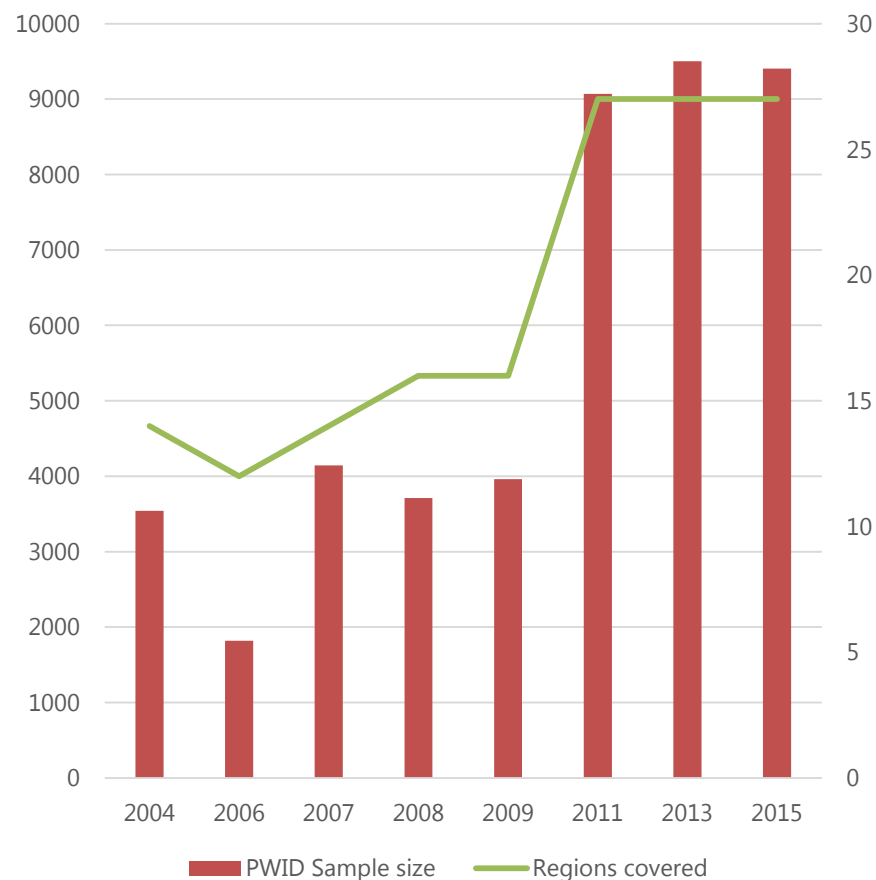
Methods: questionnaire

- IBBS questionnaires include questions used to develop the cascade:
    - Have you been tested previously?
    - Have you received the result of the test?
    - Are you willing to tell you HIV status?
    - What is your HIV status?
    - Are you registered in a HIV clinic?
    - Do you receive ART?

    - HIV rapid test result

- Other IBBS questions are used to determine predictors of cascade indicators

Results: cascade calculation

Indicator	Definition	Num.	Den.	Raw % (95% CI)	Cascade % (95% CI)	Cascade N*
PWID living with HIV	Tested HIV+ in the survey	2073	9405	22% (21.2-22.9%)	**100%**	**78,247**
Aware of HIV status	Tested HIV+ in the survey _and_ being tested previously and received the result	1647	2034	81.0% (79.3-82.7%)	**81.0% (79.3-82.7%)**	**63,359**
Registered in HIV care	Tested HIV+ in the survey _and_ being tested previously and received the result _and_ willing to disclose HIV status _and_ reporting being registered	827	902	91.7% (89.9-93.5%)	**74.2% (72.8-75.7%)**	**58,091**
Receive ART	Tested HIV+ in the survey _and_ being tested previously and received the result _and_ willing to disclose HIV status _and_ reporting being registered _and_ reporting receiving ART	521	827	63.0% (59.7-66.3%)	**46.8% (44.3-49.2%)**	**36,597**

*Based on 355,000 estimated population size

UIPHP

Results: graphical cascade

National estimate*
78,247

PWID living with HIV	Aware of HIV status**	Registered in HIV care***	Receive ART****
100%	81,0%	74,2%	46,8%

IAS 2017
9TH IAS CONFERENCE ON HIV SCIENCE
PARIS, FRANCE | 23-26 JULY 2017

UIPHP

Results: multivariable regression for HIV clinic registration

	B	p-value	aOR	95% C.I. for aOR Lower	Upper
Gender (F vs. M)	**.641**	**.044**	**1.899**	**1.017**	**3.546**
Age <30		.001			
Age 30-34 (vs. <30)	.922	.026	2.515	1.114	5.679
Age >=35 (vs. <30)	**1.398**	**.000**	**4.048**	**1.949**	**8.408**
Opiate use (vs. other)	.584	.202	1.793	.731	4.397
Stimulant use (vs. other)	-.521	.112	.594	.313	1.129
<u>Being NGO client</u>	**.710**	**.009**	**2.034**	**1.195**	**3.461**
Ever OAT	.258	.413	1.295	.698	2.403
No case-management		.000			
Current case-management	1.781	.084	5.934	.789	44.654
Past case-management	**-2.373**	**.000**	**.093**	**.042**	**.204**
Constant	-.183	.805	.833		

Results: multivariable regression for receiving ART

	B	p-value	aOR	95% C.I. for aOR	
				Lower	Upper
Gender (F vs. M)	.286	.080	1.331	.967	1.832
Age <30		.000			
Age 30-34 (vs. <30)	.473	.111	1.604	.898	2.867
Age >=35 (vs. <30)	**.931**	**.001**	**2.537**	**1.489**	**4.322**
Opiate use (vs. other)	.423	.173	1.526	.831	2.800
Stimulant use (vs. other)	-.166	.391	.847	.579	1.239
Being NGO client	**.520**	**.000**	**1.683**	**1.262**	**2.244**
Ever OAT	.176	.273	1.192	.870	1.633
No case-management		.005			
Current case-management	**.562**	**.036**	**1.753**	**1.036**	**2.968**
Past case-management	**-.817**	**.020**	**.442**	**.221**	**.882**
Constant	-1.521	.002	.218		

Limitations

- Traditional IBBS biases: sampling bias, recall bias

- Second indicator (% of PLWH aware of the status) may include people who previously tested negative
  - Assuming low incidence, the overestimation would not be large
  - Alternative approach – exclude those who deny to report HIV status, but this would lead to underestimation because HIV+ aware are less likely to report
- Multiplying proportions is multiplying errors
  - Increases the uncertainty of the estimates

Conclusions: programmatic

- ART coverage among PWID is much higher than in the routine statistics, and is no less than that among all PLWH (~33%)
  - May reflect the impact of the massive prevention program (covering 200,000+ PWID annually) which includes linkage and case-management components

- Significant gaps remain along the cascade especially in accessing ART among those in care

- Continuous, uninterrupted provision of evidence-based interventions (OAT, case management) is essential to improve enrollment and prevent dropout

UIPHP

Conclusions: methodological

- IBBS is a valuable source of data for the KP cascade analysis
  - No additional cost if already in place
  - Avoids biases related to routine program data
    - Underreporting of risk (at least 25% of PWID, 35% of MSM are misclassified in Ukraine)
  - Allows building cascades for subgroups that cannot be disaggregated in the routine data (e.g. CSW, migrants)

- Viral suppression is not usually measured in IBBS
  - Will be added in the 2017 round in Ukraine

IAS2017
9TH IAS CONFERENCE ON HIV SCIENCE
PARIS, FRANCE | 23–26 JULY 2017

UIPHP

Study funding

- IBBS in Ukraine supported by Global Fund until 2013, co-funded and funded by PEPFAR since 2013

- This research has been supported by the President's Emergency Plan for AIDS Relief (PEPFAR) through CDC under the terms of U2GGH000840 to Alliance for Public Health in Ukraine.
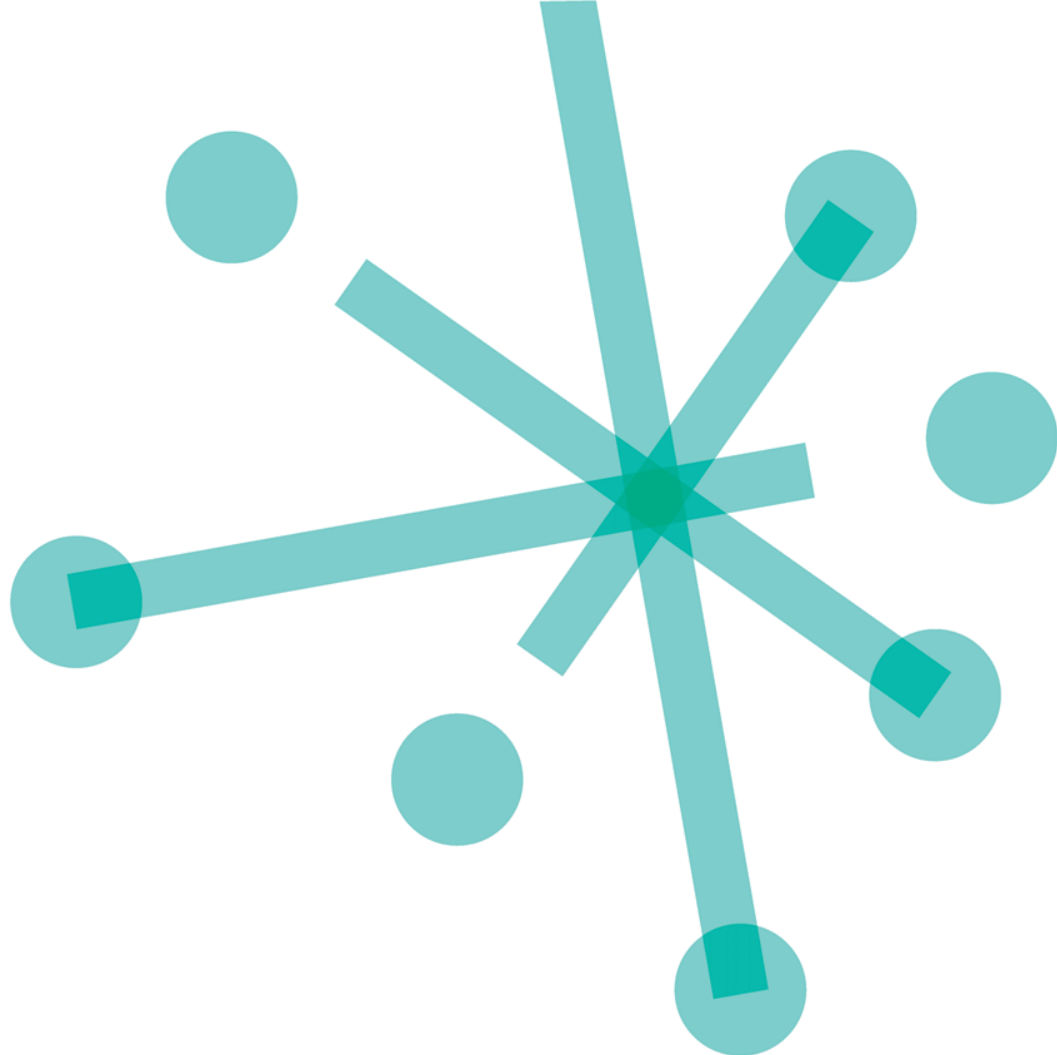
Thank you for attention!

dumchev@uiphp.org.ua