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# HIV outbreak in Greece: Results of the ARISTOTLE study

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# A Seek-Test-Treat-Retain (STTR) intervention to decrease HIV/AIDS transmission among IDUs in Athens metropolitan area: “Aristotle” Programme

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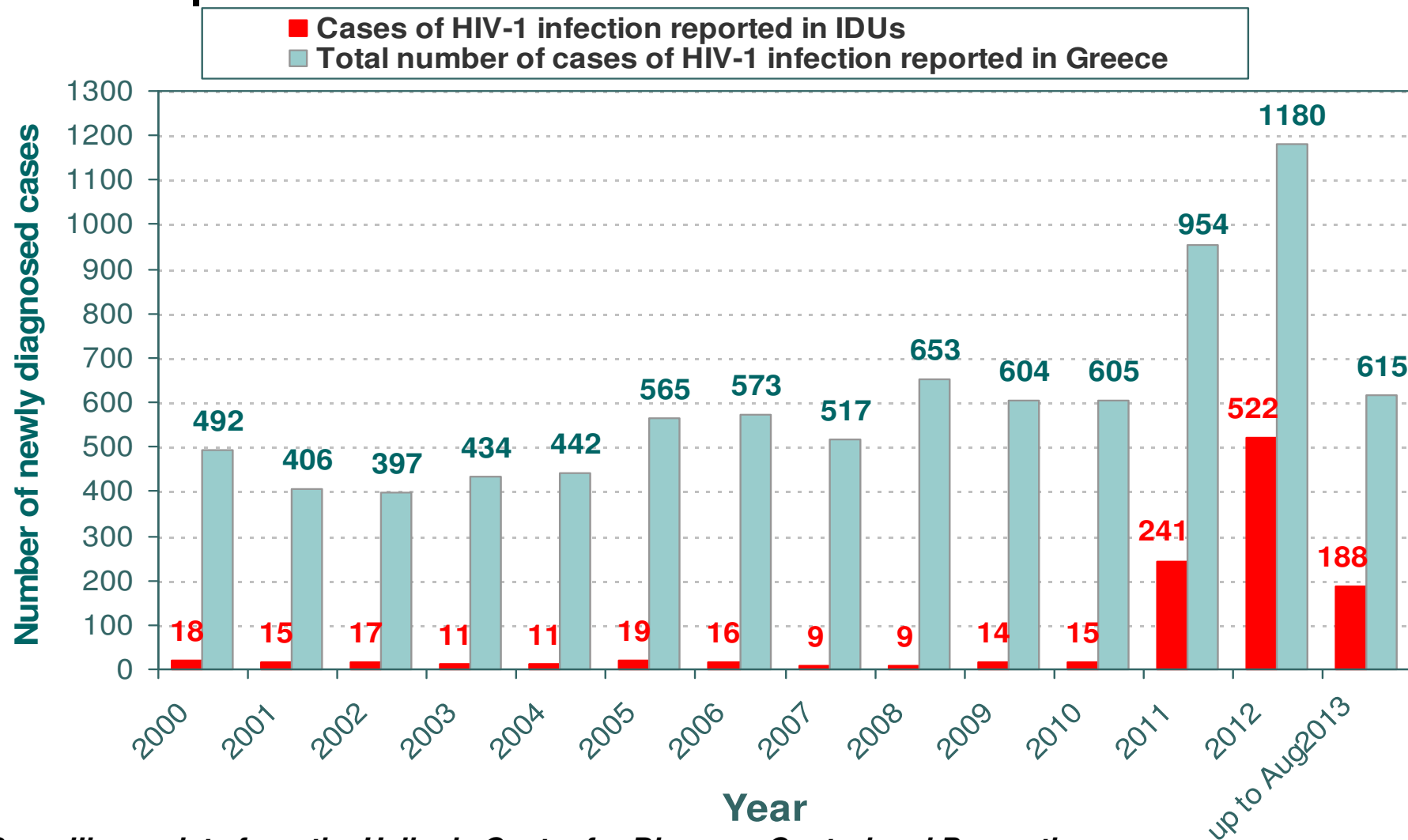
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Introduction - Aims of the  
programme

# Newly diagnosed cases of HIV-1 infections reported in Greece, 2000-2012



Surveillance data from the Hellenic Centre for Diseases Control and Prevention



# “Aristotle” Programme

## **Aims of the programme:**

- To screen for anti-HIV IDUs in Athens Metropolitan Area.
- To provide the WHO/UNODC/UNAIDS and ECDC/EMCDDA prevention, treatment and care package.
- To decrease the incidence of HIV-1 among IDUs.

## **Secondary aims include:**

- To provide an estimate of HIV prevalence among IDUs during the course of the study.
- To describe phylogenetic networks
- To study behavioral characteristics of this population
- To increase linkage and retention to care of IDUs



Methods



# Sampling method - Participants

## **Sampling method:**

- Respondent Driven Sampling (RDS)

## **Seeds:**

- Non-randomly selected IDUs (selected by the staff of OKANA on the basis of diversity concerning gender, age, ethnicity and HIV status)

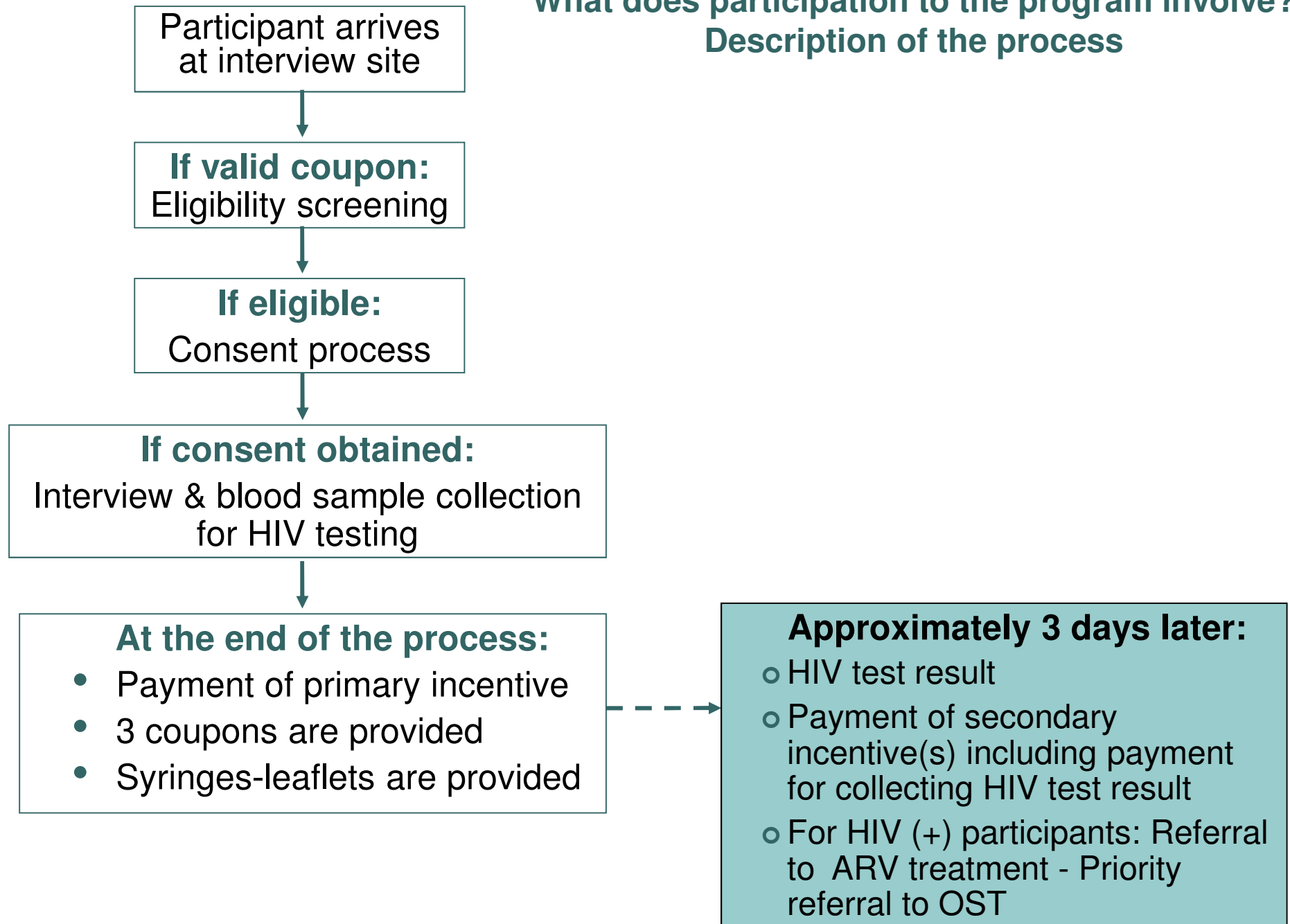
## **Eligibility criteria for participants.** Persons who:

- Have a valid coupon
- Have injected drugs in the past 12 months
- Live in the area of Athens
- $\geq 18$  years old

## **Recruitment in 5 rounds within 16-18 months (Aug 2012 – Dec2013)**

- Currently in last round. In each round
  - 5-15 seeds
  - A sample of approximately 1,400 IDUs per round
  - Duration of each round: 10-12 weeks

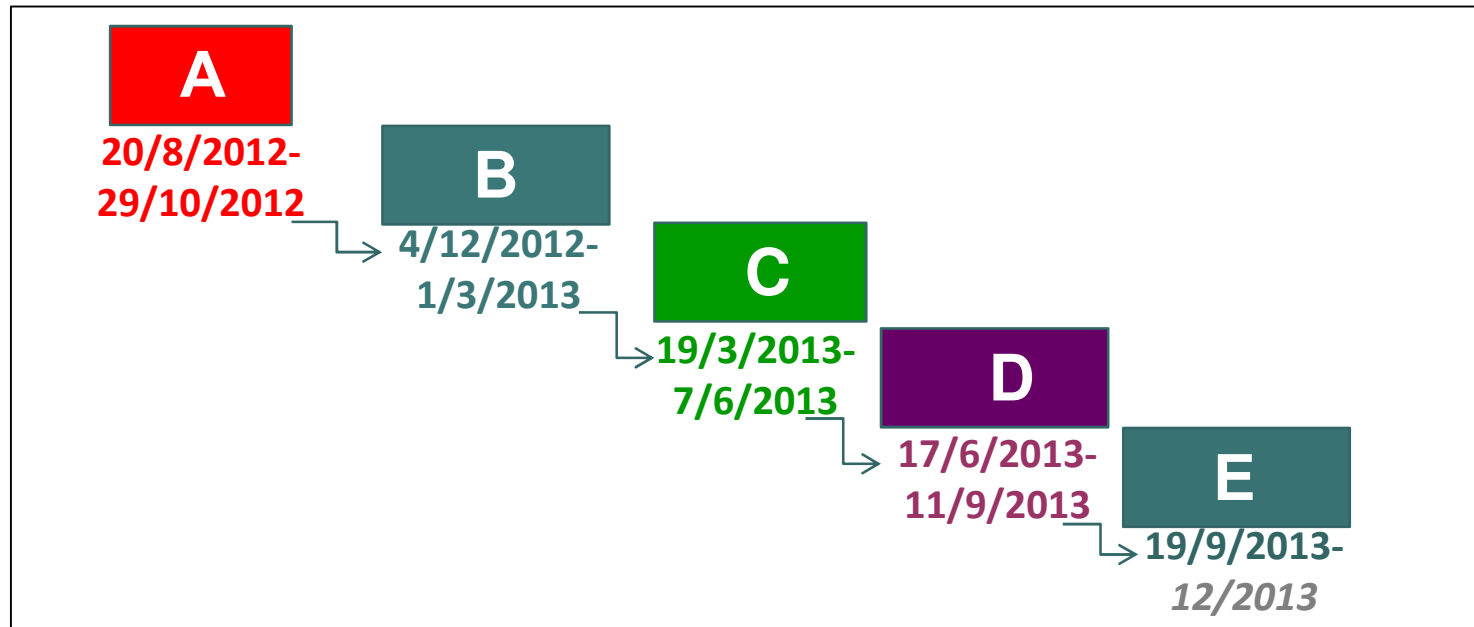
## What does participation to the program involve? Description of the process







# RDS rounds in Aristotile



A person can participate in multiple rounds  
BUT only once in each round



# RDS site & staff - Incentives

- **Site:**

A building of the Organisation Against Drugs located in the centre of Athens

- **Staff:**

Ex-IDUs, social workers, psychologist, cultural mediators, one medical doctor - one volunteer from an NGO

- **Incentives:**

- 5 € for questionnaires and blood sampling
- 3 € for each IDU they recruit (up to 3 recruits)
- In the 2<sup>nd</sup> round and onwards, an additional amount of 3 € is given to participants when they collect their HIV test result



# Questionnaire

The questionnaire of the National HIV Behavioral Surveillance System (NHBS)-IDU3 was used as the basis for the core questionnaire of ARISTOTLE (modified as appropriate in order to be used in IDUs in Greece)

○ It includes sections on:

- Network size
- Sexual behavior
- Drug use
- Alcohol use
- Alcohol and drug treatment
- HIV testing experience
- Health condition
- Assessment of prevention activities
- Knowledge/Attitude on Recent HIV Infection (Round 2)
- Food insecurity (Round 2)



## Blood sampling – Laboratory testing

- After the interview, blood sample is collected (10 ml)
  - Collected blood samples are transported on a daily basis to the National Retrovirus Reference Centre for testing (4.00 pm).
  - HIV tests are performed with a microparticle EIA anti-HIV-1/2 (AxSYM HIV-1/2 gO, Abbott)
  - HIV-1 and HIV-2 confirmation by Western Blot (MP Diagnostics)
  - Molecular HIV-1 typing conducted with deep-sequencing and phylogenetic analysis will be used in order to identify transmission networks.
  - LAg-Avidity EIA for anti-HIV1/2 positive samples



## Referrals and counseling of HIV(+) participants

- One psychologist and 2 social workers work on referrals (OST, ART) and counseling
- NGO “Positive Voice” collaborates with ARISTOTLE – A volunteer is located in the same building to assist the counseling of seropositive IDUs
- Seropositive migrants without documents are referred to NGO Praxis



Results

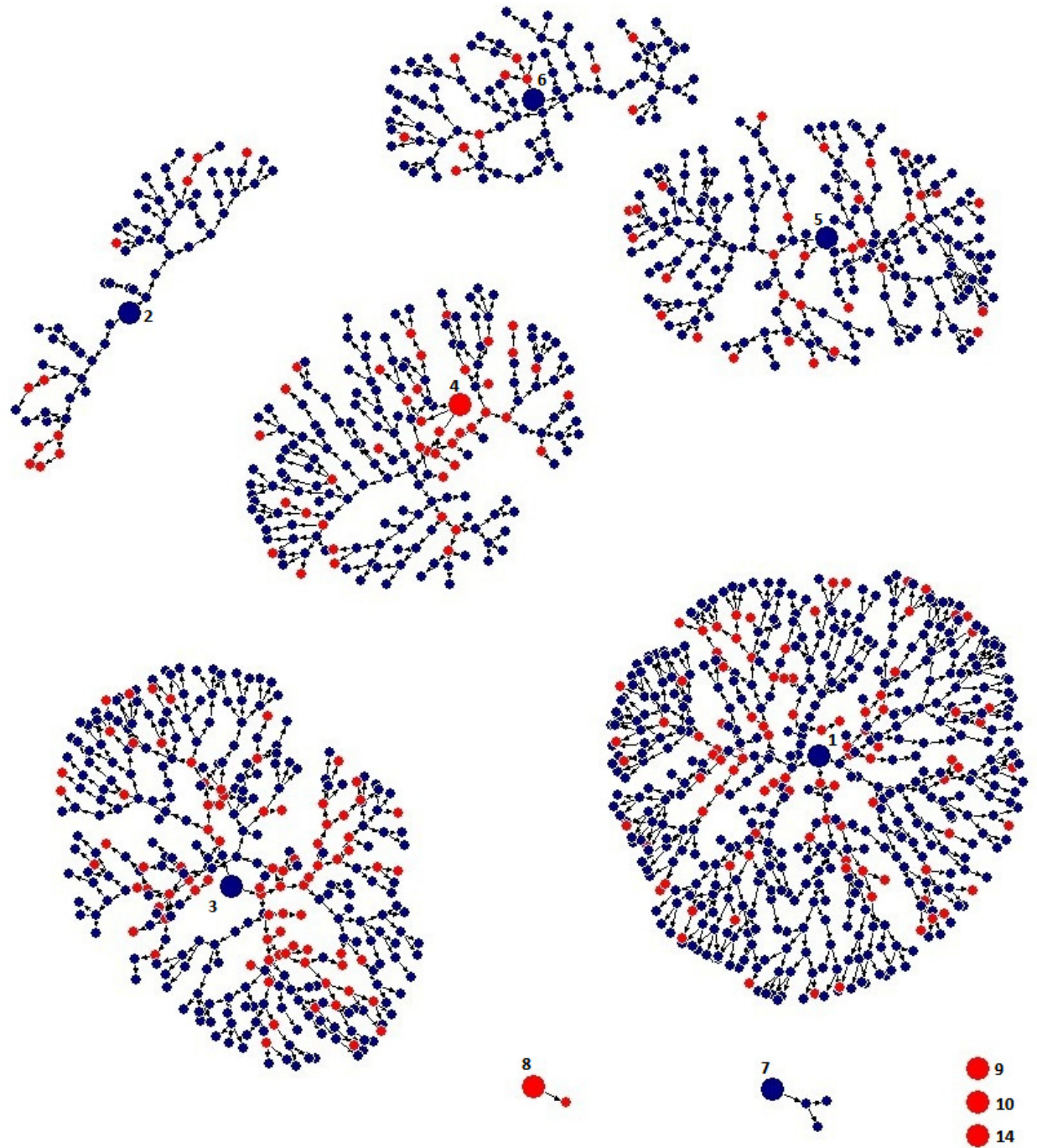
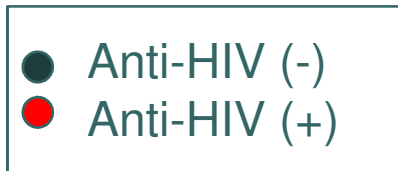


# Progress of ARISTOTLE

Round	Time period	Participants (& seeds)
<b>A</b>	Aug2012 - Oct2012	1.415
<b>B</b>	Dec2012 - Mar2013	1.444
<b>C</b>	Mar2013 - Jun2013	1.434
<b>D</b>	Jun2013 - Sep2012	1.413
<b>E</b>	Sep2013 - <i>in progress</i>	<i>in progress</i>

# RDS

Chains of RDS by  
anti-HIV status  
(results from round  
A)



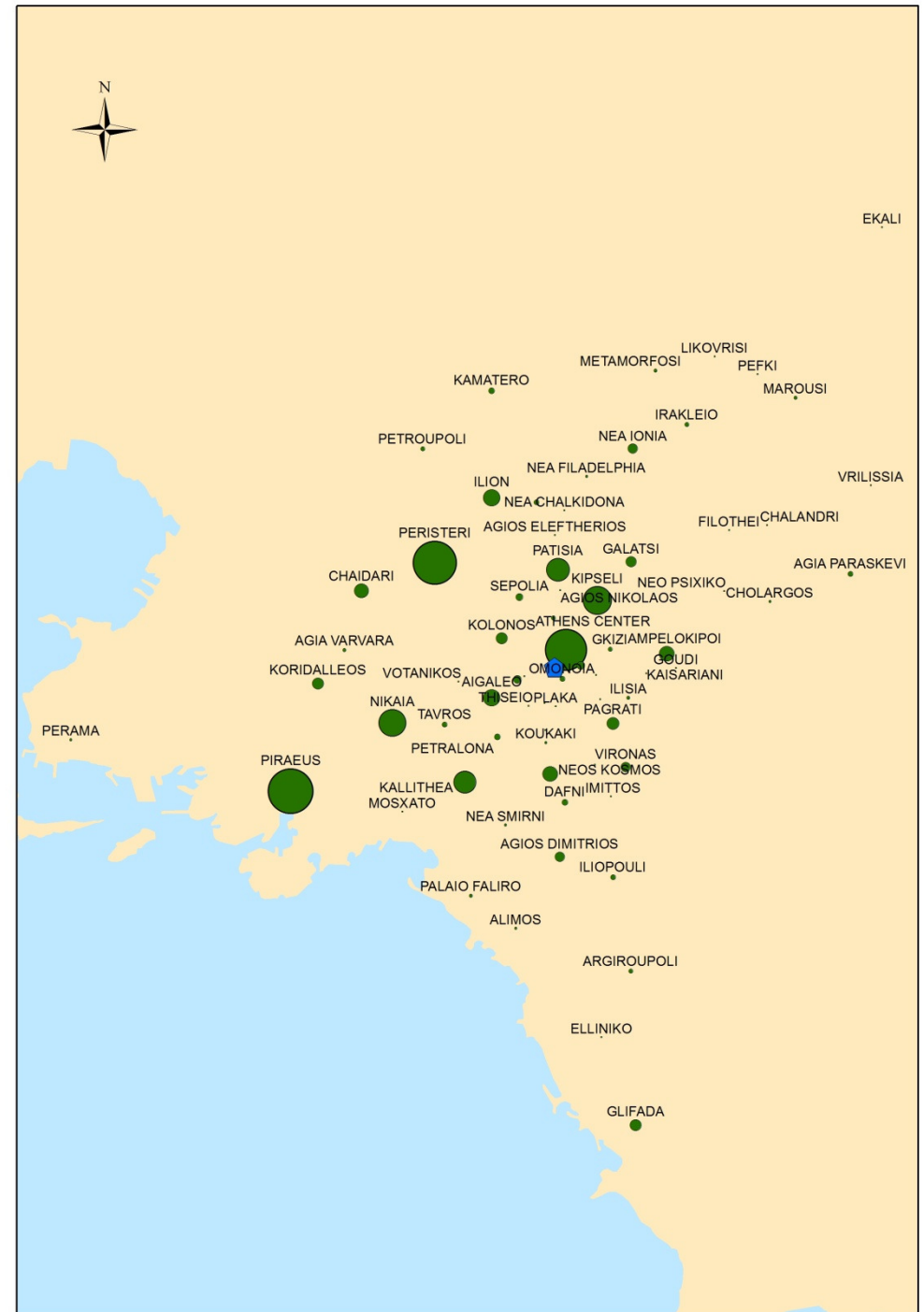


# Coverage of IDU population in Athens

Map of Athens marked with the areas where IDUs reported that they live in (green circles) –

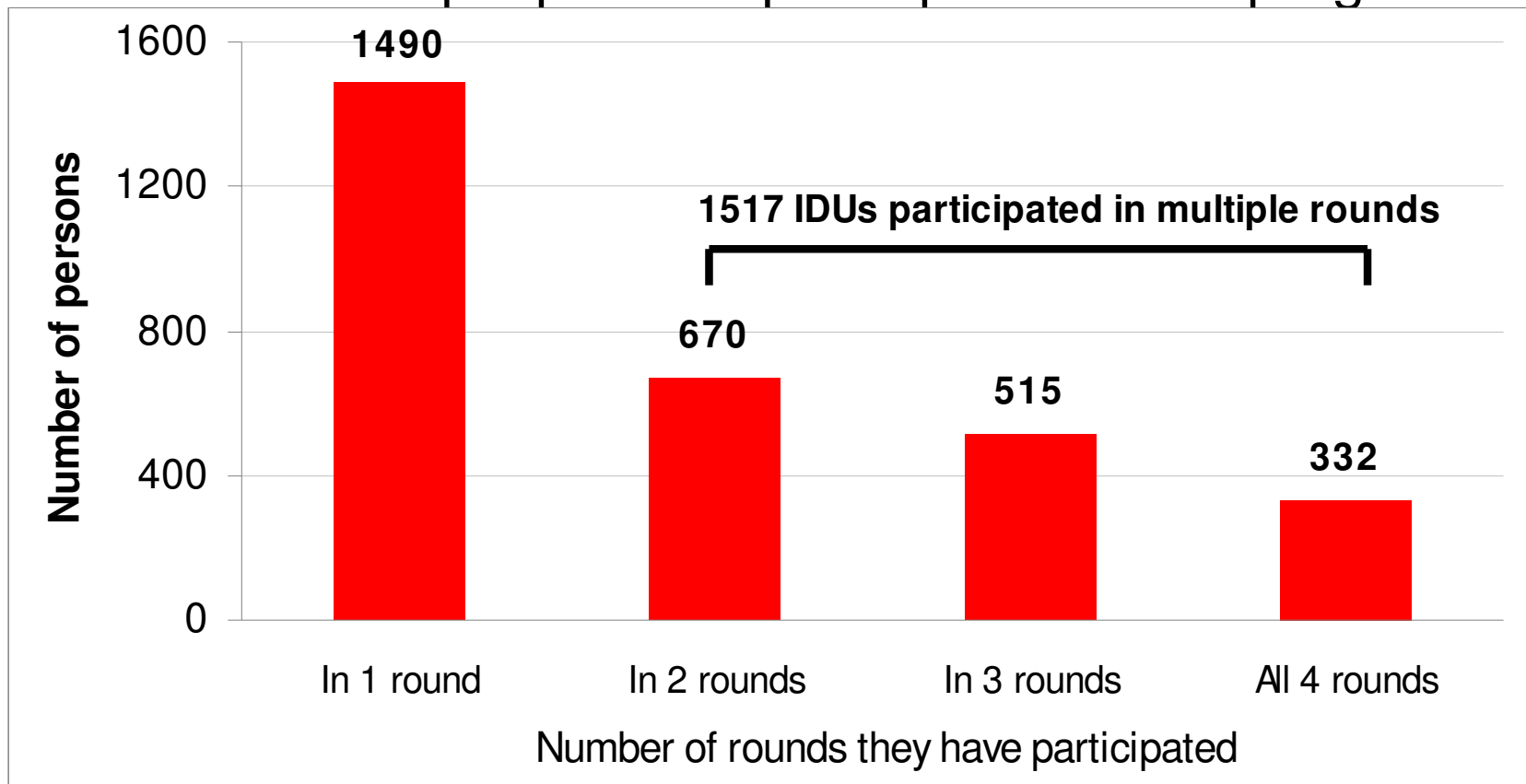
The blue symbol indicates the location of the Aristotle site

(from round A)



# Total number of participants (20/8/2012-11/9/2013)

- In the first 4 rounds :
  - 5.700 questionnaires and blood samples approx.
  - **3.007** unique persons participated to the programme



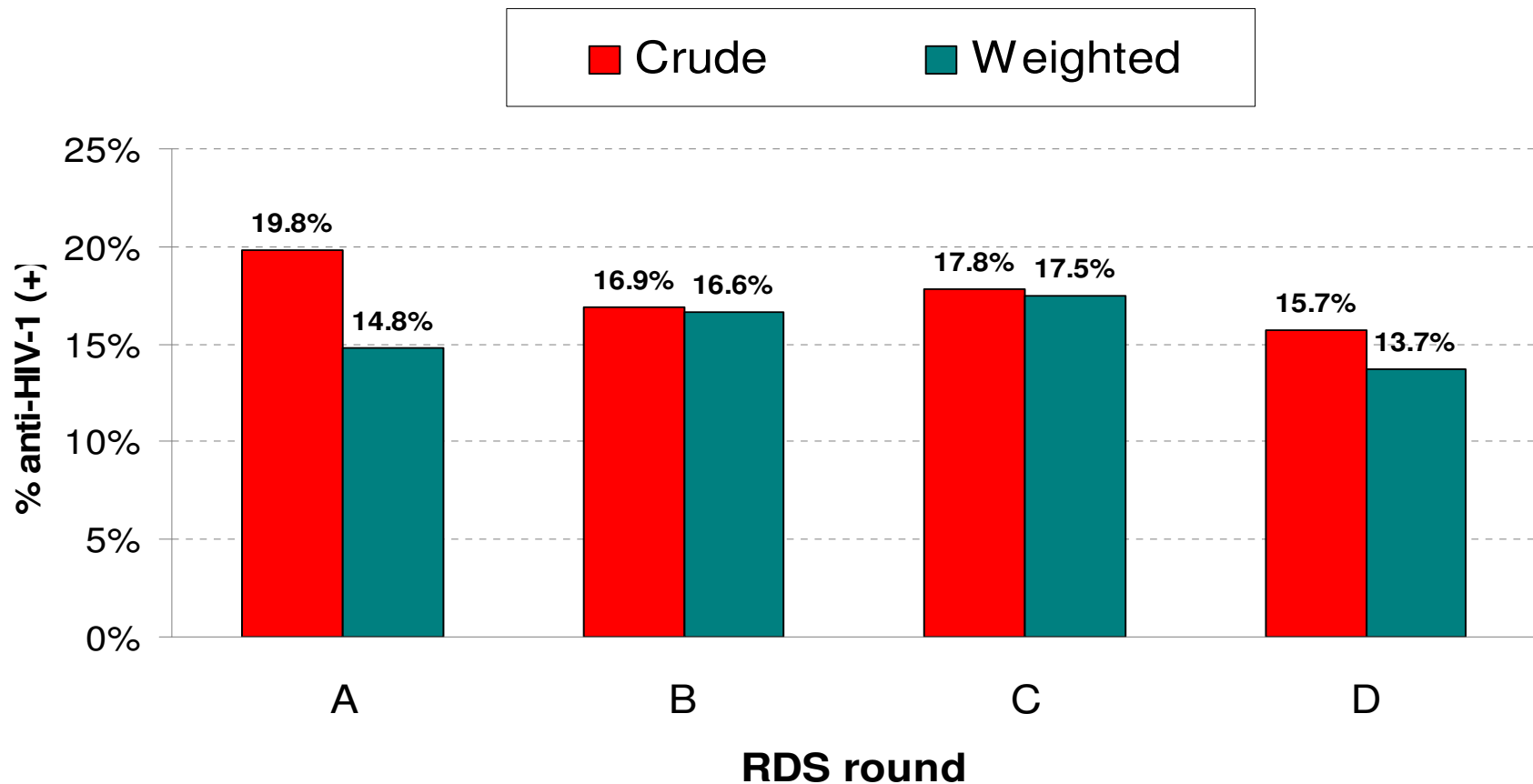


## Estimated number of problem drug users who injected drugs in the last month

- **Greek Reitox Focal Point (estimate for 2011)**
  - IDU in the last month → **2,800** (2,330-3,630)
- **Aristotle:**
  - IDU in the last 12 months → 3,007 persons
  - IDU in the last month → **2,430 persons**
- In 2012, Aristotle participated to the capture-recapture carried out by the Greek Reitox Focal Point
  - Out of **1,515** reported by Aristotle → only **442** were also present in other sources participating to the capture-recapture (KETHEA, 18 ANO, EKTEPN)

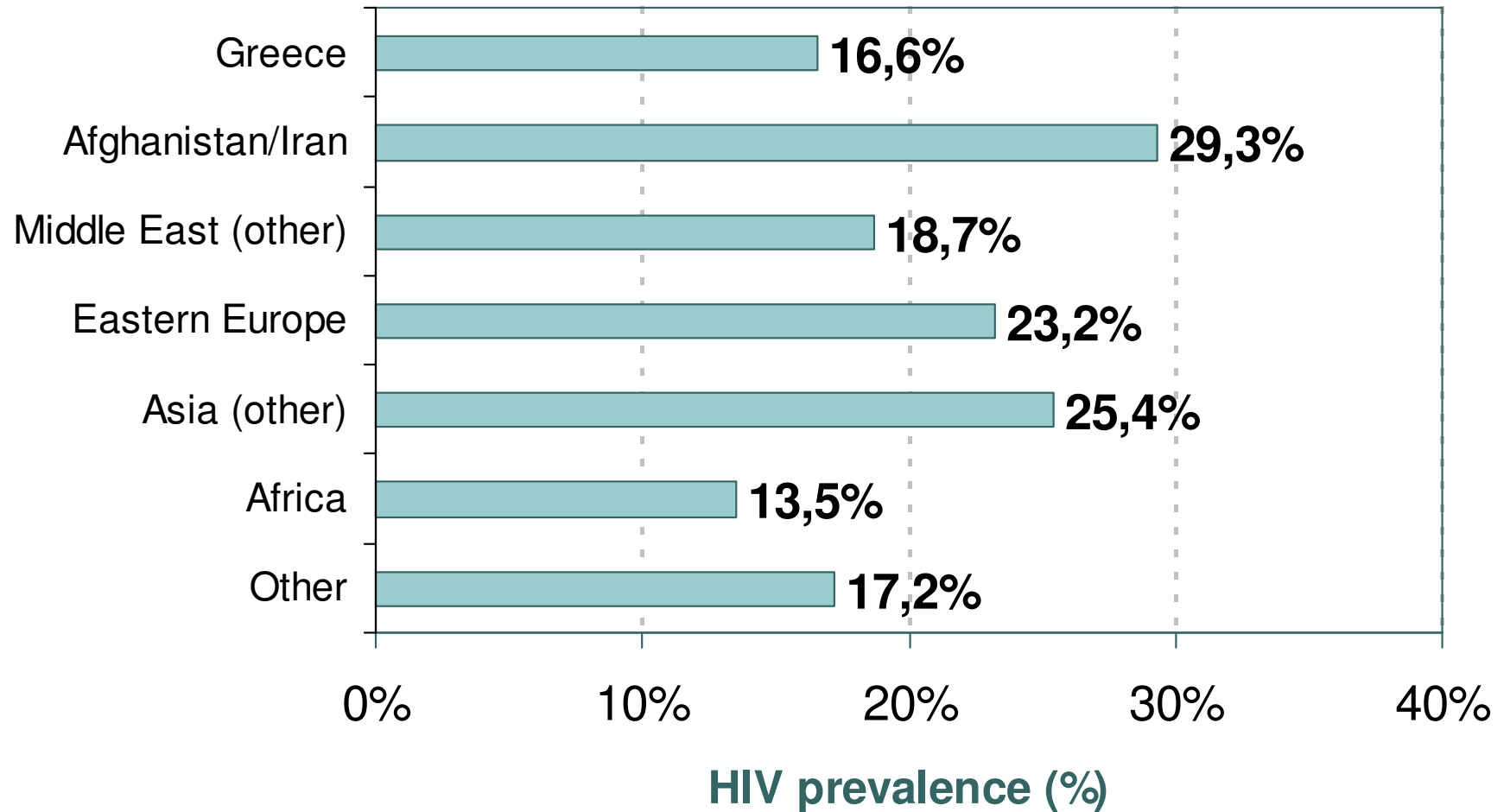
# HIV prevalence (by EIA) per round & weighted estimate for RDS

- In total, out of 3.007 participants in the 4 rounds: → **523 (17.4%) were found anti-HIV(+)**



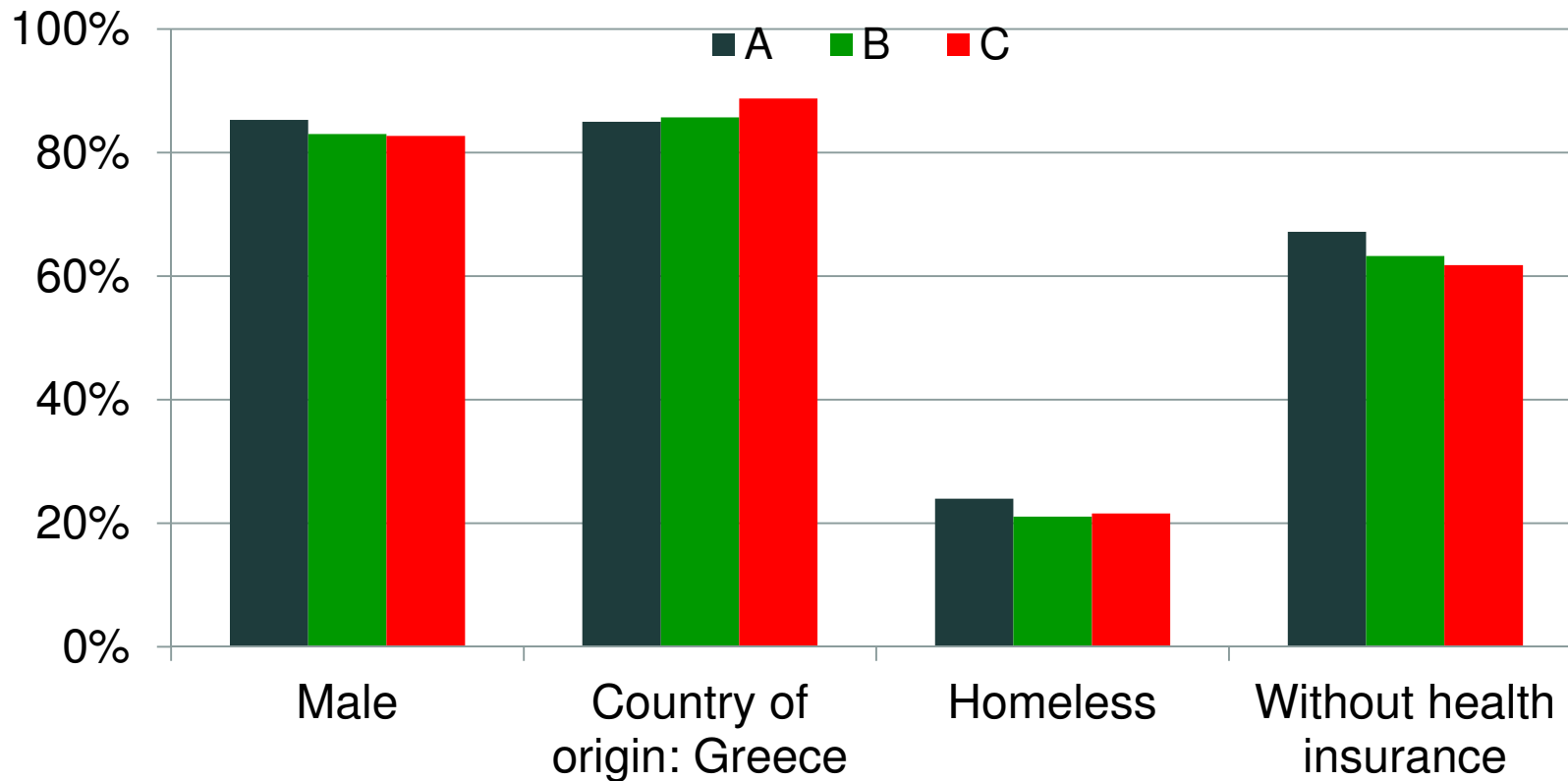


# HIV prevalence according to country of origin (rounds A-D)



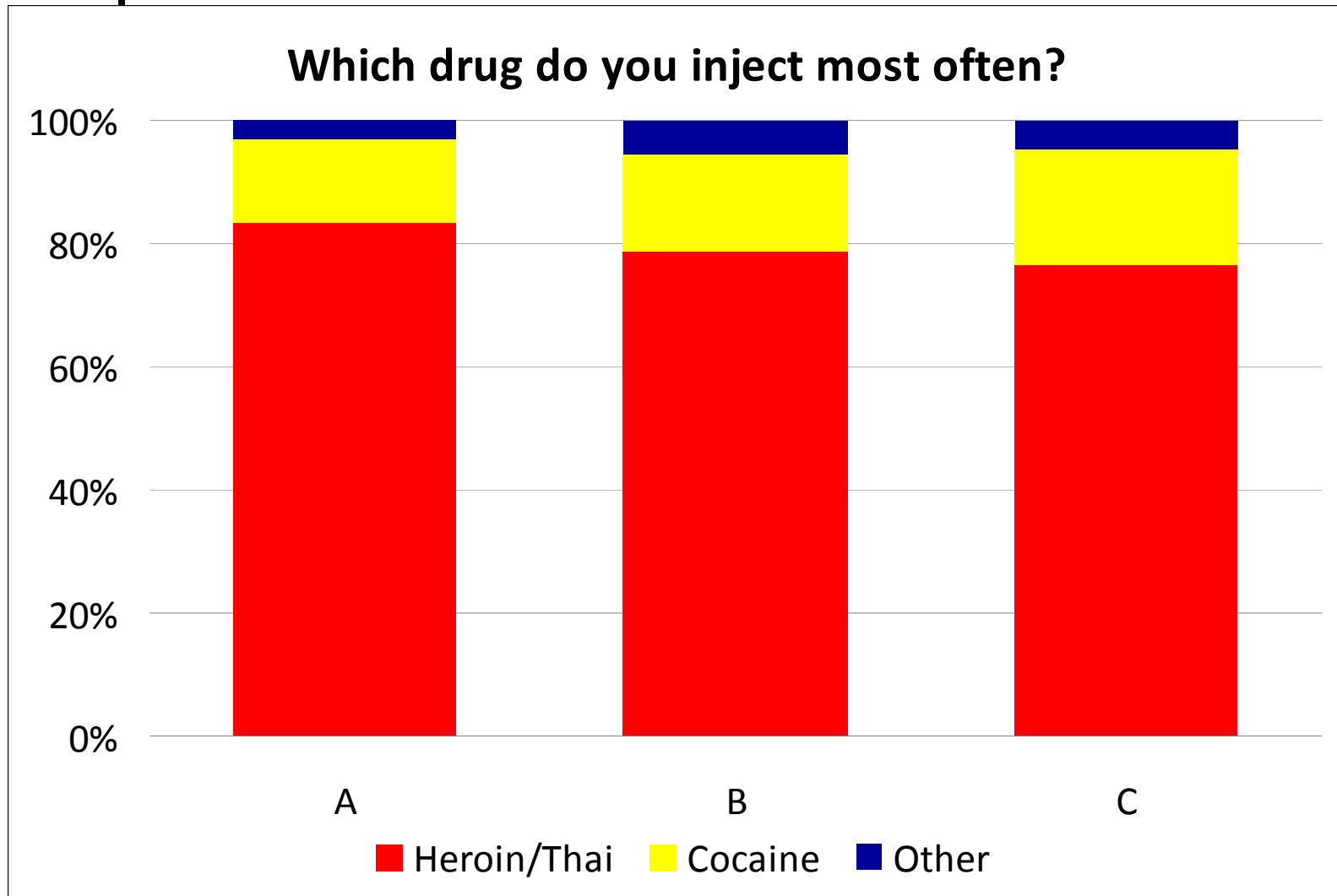
# Demographic characteristics of the participants (excl. seeds)

	Round A (N=1404)	Round B (N=1438)	Round C (N=1429)
<b>Age</b> Mean (SD)	35.3 (7.9)	36.1 (8.3)	36.4 (8.1)





# Injecting drug use





# Injecting drug use

	Round A (N=1404)	Round B (N=1438)	Round C (N=1429)
<b>Duration of injecting drug use</b> Median (25th, 75th)	12 (7, 18)	13 (7, 19)	13 (7, 19)
<b>Injecting drug use <u>at least once per day</u> in the past 12 months, %</b>	54.0%	29.3%	25.5%
<b>If more than once per day</b> , how many times per day on an average day, median (25 <sup>th</sup> , 75 <sup>th</sup> )	3 (2, 4)	3 (2, 4)	3 (2, 4)
<b>Sharing syringes in the past 12 months “about half of times or more”, %</b>	11.1%	5.2%	4.7%
<b>Shared syringes (the last time they injected), %</b>	19.5%	18.2%	16.5%





# Use of sisha/methamphetamines

	Round A (N=1404)	Round B (N=1438)	Round C (N=1429)
<b><u>Injecting</u> sisha/methamphetamines in the past 12 months, %</b>			
At least once per day	0.9%	0.1%	0.1%
Not daily but approx. once per week	1.1%	0.4%	0.2%
Less than once per week/ocassionally	6.9%	4.5%	4.5%
Never	91.1%	95.0%	95.1%

# Sexual behavior (past 12 months)

Use of condom “Always” or “Usually yes”, %

Males

Females

Round  
A

58.7%

36.1%

Round  
B

58.7%

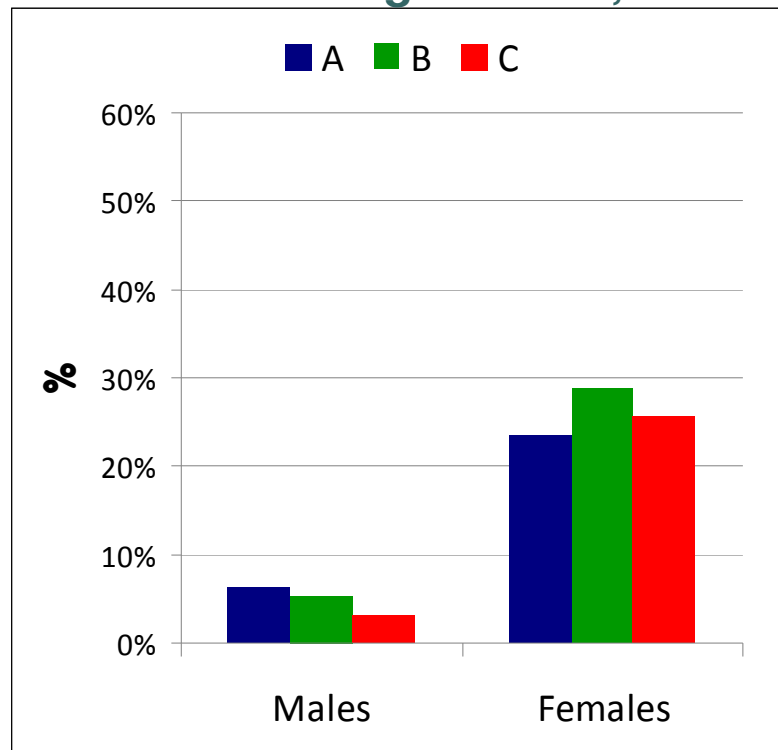
43.8%

Round  
C

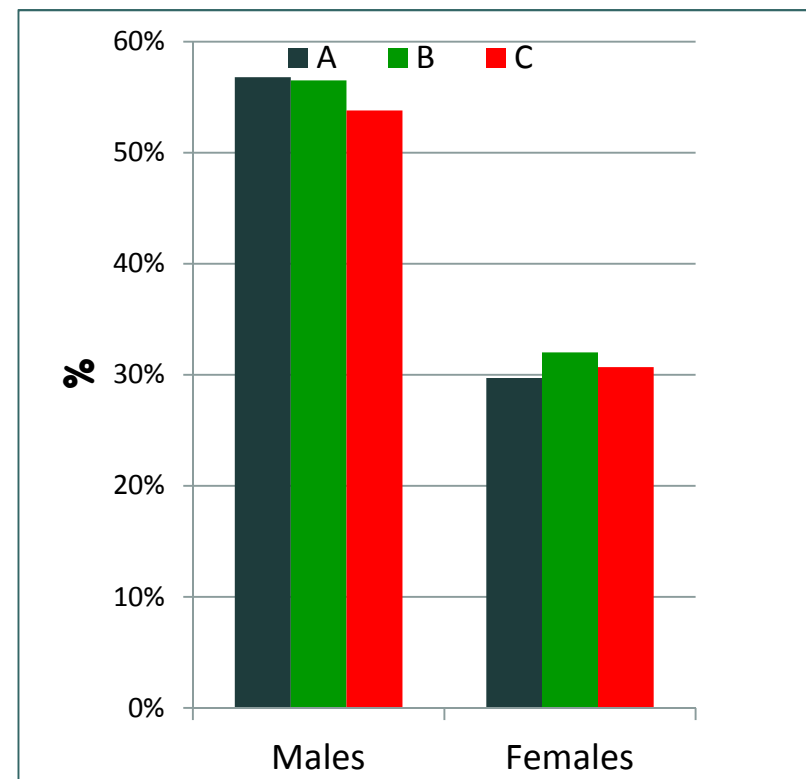
60.2%

39.9%

Received money or drugs in exchange for sex, %



Last sexual partner non-IDU, %



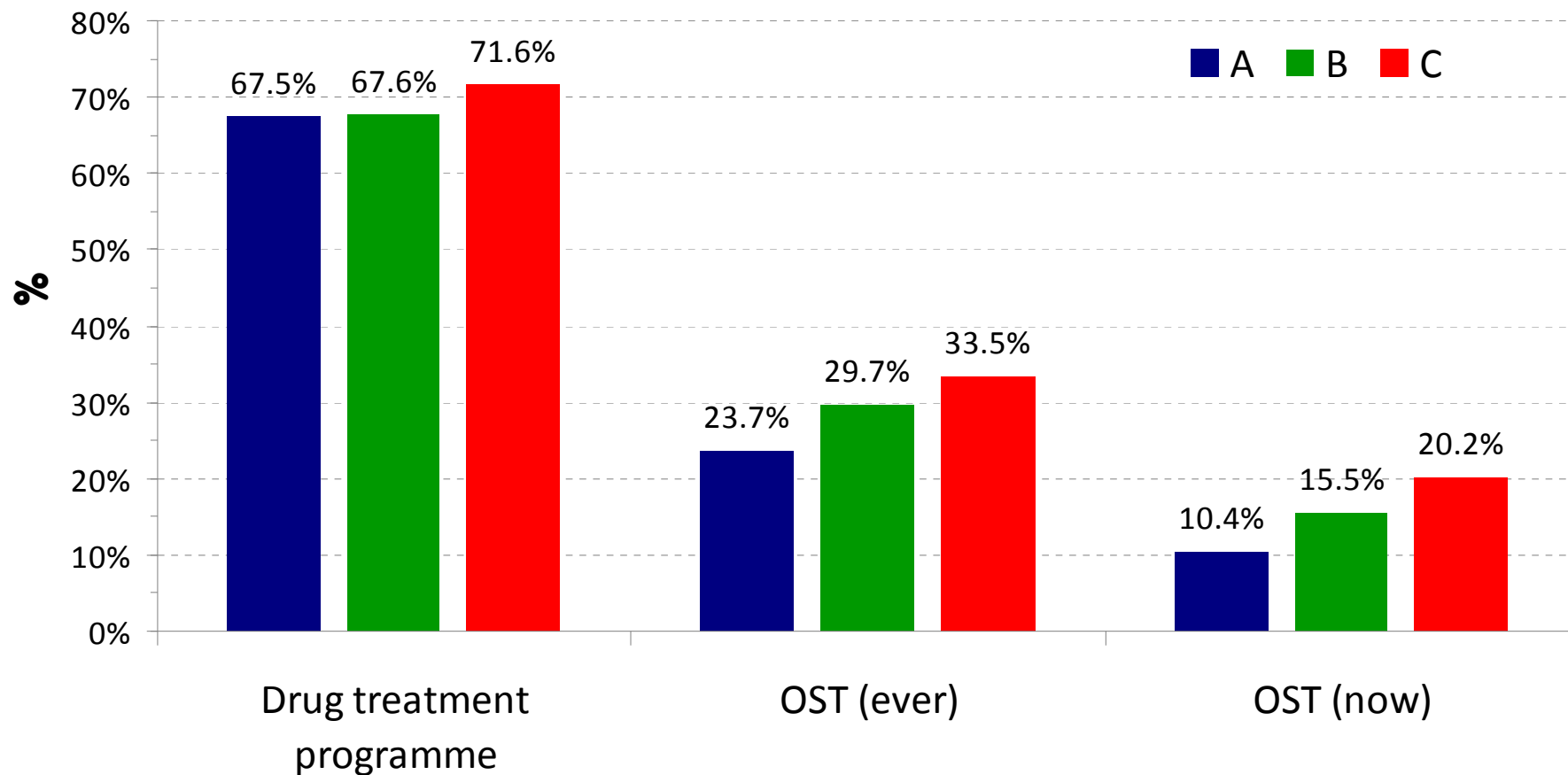


# Access to treatment and prevention programmes (1)

	Round A (N=1404)	Round B (N=1438)	Round C (N=1429)
<b>Received free syringes through prevention activities (past 12 months), %</b>	61.7%	54.3%	56.3%
If yes, how many syringes in the last month, median (25th, 75th)	20 (10, 45)	20 (10, 40)	20 (10, 40)
<b>One-on-one conversation with an outreach worker, counsellor, or prevention program worker about ways to prevent HIV (past 12 months), %</b>	27.2%	28.2%	34.2%

# Access to treatment and prevention programmes (2)

Participation to:





# Previous testing and treatment for HIV

	Round A (N=1404)	Round B (N=1438)	Round C (N=1429)
<b>Ever tested for HIV, %</b>	64.1%	80.7%	87.3%
<b>Aware of an anti-HIV(+) result, %</b>	4.1%	8.9%	11.4%
<b>Out of those aware of seropositivity, % under ART at the time they participated to the programme</b>	22.4%	26.6%	35.0%

# Factors associated with increased risk of HIV infection

- From round A, the following variables were independently associated with increased risk of HIV infection:

- Homelessness

(OR vs. not being homeless: 2.3,  $p < 0.001$ )

- Cocaine as main substance of use

(OR vs. heroin : 2.6,  $p < 0.001$ )

- Injecting drug use at least daily (past 12 months)

(OR vs.  $< 1$  per day: 2.1,  $p < 0.001$ )

- Sharing syringes (“almost always”, “always”)

(OR vs. never in the past year: 2.2,  $p = 0.041$ )

*Sypsa et al, Am J Public Health (in press)*

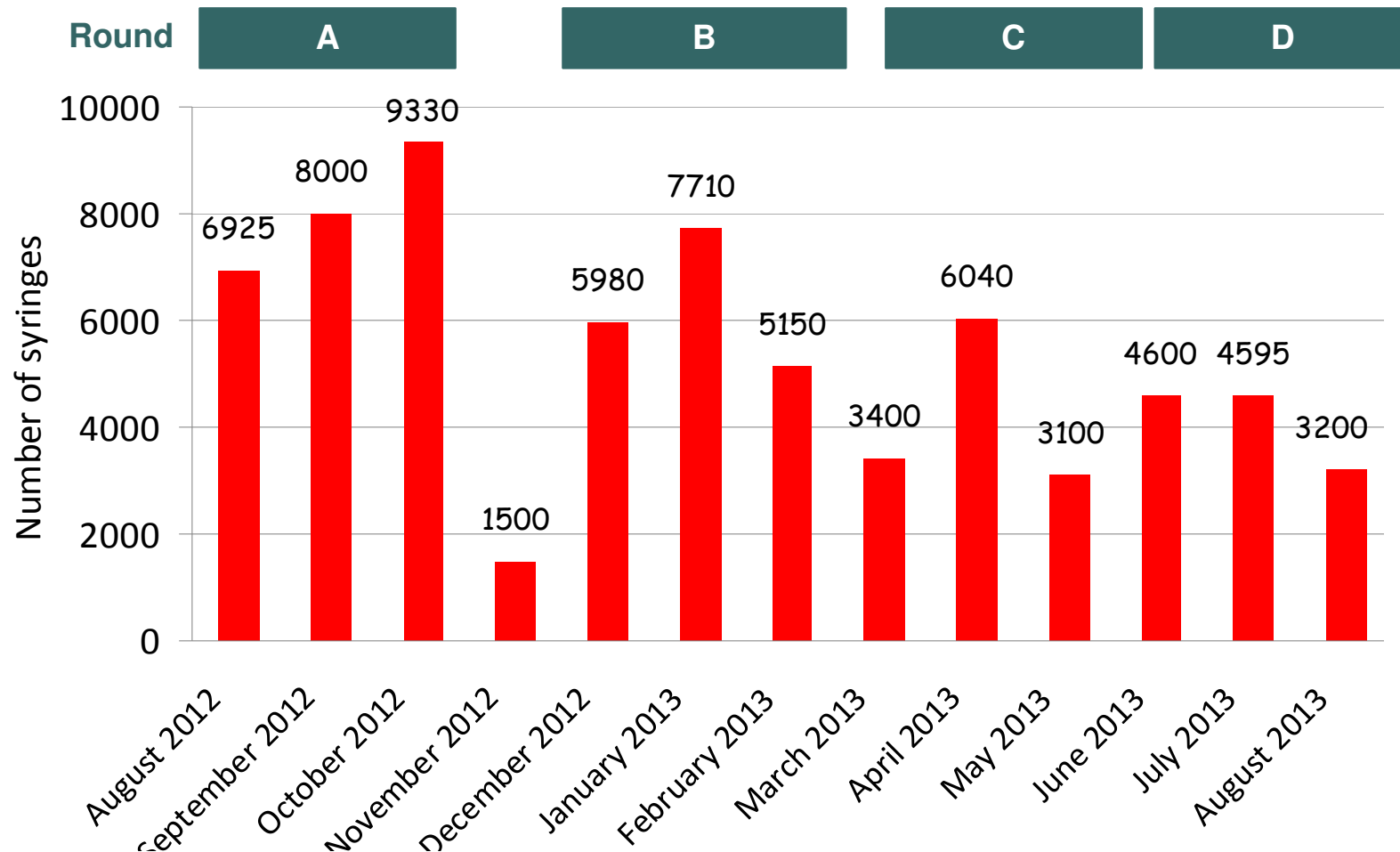
## ● ● ● | Linkage to ARV treatment

- Out of 411 IDUs who were found to be seropositive within the first 3 rounds of the programmes :
  - 219 (53%) were diagnosed for the first time through Aristotle
  - The remaining 192 (47%) **had been diagnosed in the past**
    - 92 had been linked to an infectious disease unit in the past— 100 not linked

Out of 319 persons (unlinked) →  
118 (37%) were linked after their participation  
to Aristotle

# Syringes distributed to the participants of the programme (Aug 2012- Aug 2013)

In total, 69,530 syringes were distributed



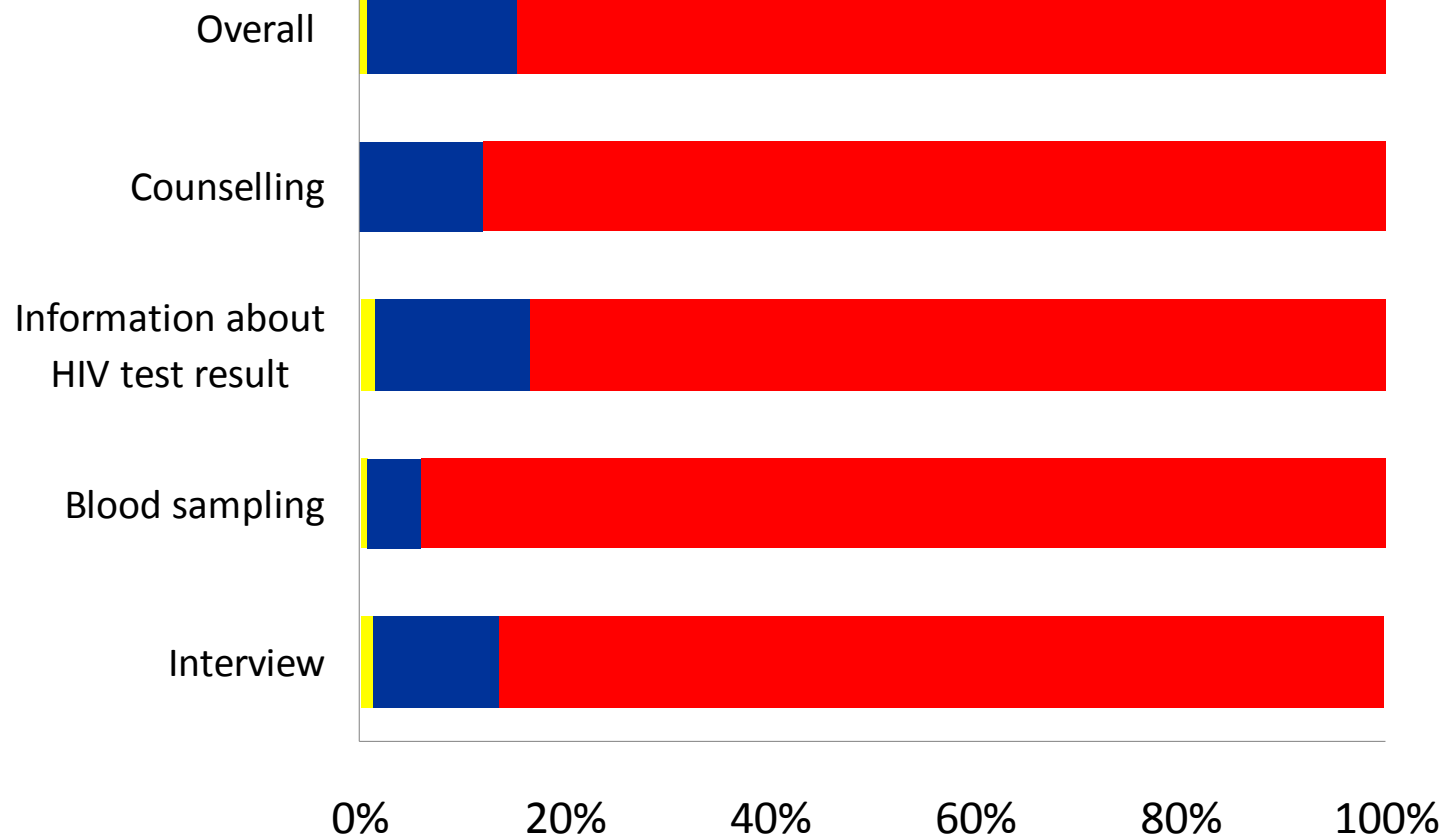


# Evaluation of the programme by the participants (data from round D)

● ● ●

■ No   ■ Low   ■ Medium   ■ High   ■ Very high

## Level of satisfaction:

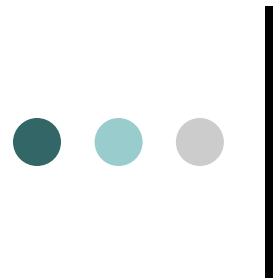


# ● ● ● | Main points to discuss (1)

- The recruitment of a large number of IDUs from a wide geographic area in Athens in a short period of time - Acceptability of the programme by the target population of IDUS
- 523 IDUs were found to be anti-HIV(+). Approximately half of them were diagnosed for the first time through Aristotle
- 37% of the new diagnoses (or old ones who were not linked) were linked to infectious disease units after their participation to Aristotle
- Approximately 55% of men and 30% of women IDUs reported last sexual partner who was non-IDU → potential of substantial HIV-1 spread in the non-injecting population in the near future (as in the example of New-York, DesJarlais et al, 2011).

## ● ● ● | Main points to discuss (2)

- Until now, a large number of HIV infected IDUs has been identified –Linkage and retention to care (ARV, OST) is a challenge due to particular characteristic of seropositive IDUs (lack of health insurance, homelessness, coinfection with hepatitis C, food insecurity)
- Homelessness:
  - **For seropositive IDUs:** It makes linkage and retention to care even more challenging
  - **For IDUs who are not infected:** It is associated with increased risk of HIV infection
  - **Overall:** the efficacy of needle and syringe programmes depends also on housing as it may be difficult for homeless IDUs to store sufficient quantities of clean syringes.



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- |                  |                    |              |
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