

HCV Seroprevalence Survey in Georgia

Paata Imnadze

Ana Kasradze

Giorgi Kuchukhidze

National Center for Disease Control and Public Health



Content

Background

- Rational
- Serosurvey Outcomes

Methods

Results

- HCV Prevalence by Key Demographic Variables
- Characteristics associated with anti-HCV+
- Communication & Education Efforts
- Conclusions

Background

Rationale

- Existing HCV prevalence data in Georgia are:
 - 10+ years old
 - Geographically limited (Tbilisi only)
 - Focused on specific high-risk groups (PWID, prison inmates)
- HCV elimination plan requires baseline national prevalence data to:
 - Plan prevention, care & treatment services
 - Measure progress over time toward elimination

Background

Serosurvey Objectives

- Primary Objectives
 - Calculate HCV prevalence in Georgia
 - Nation-wide
 - In 6 major cities (including Tbilisi)
 - Several specific geographical regions
 - Urban vs. rural
 - Determine HCV genotype distribution and risk factors
- Secondary Objectives
 - Calculate HBV prevalence in Georgia
 - Update 2010 WHO data on prevalence of risk factors for non-communicable diseases (NCDs) – hypertension, obesity, smoking, alcohol misuse, physical activity

Methods

Methods

- Sample chosen using a stratified, multi-stage cluster design with systematic sampling
- Sample: 7,000 adults, ≥ 18 years of age
- Sample size calculated based on:
 - Estimated HCV prevalence (6.7%, Tbilisi survey)
 - Projected 70% response rate
 - Desired precision of estimates (95% confidence interval $\pm 1\%$)

Methods

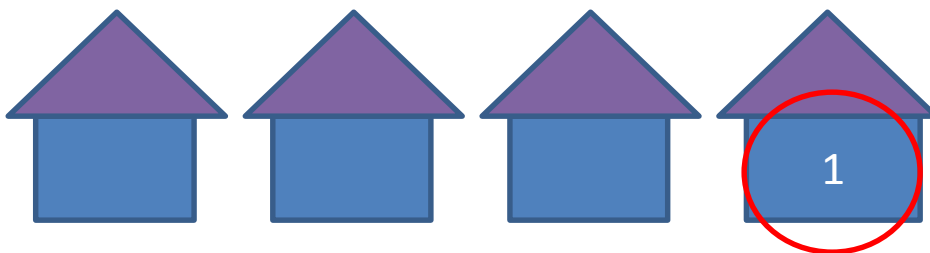
stratification: 6 cities + 10 regions = 16 strata

↓ 280 clusters selected randomly from strata

↓ 25 households selected per cluster

↓ Households chosen systematically using a skip pattern

↓ 1 individual randomly selected per household, using Kish grid



Field team structure

Survey Coordinator

Field Coordinator

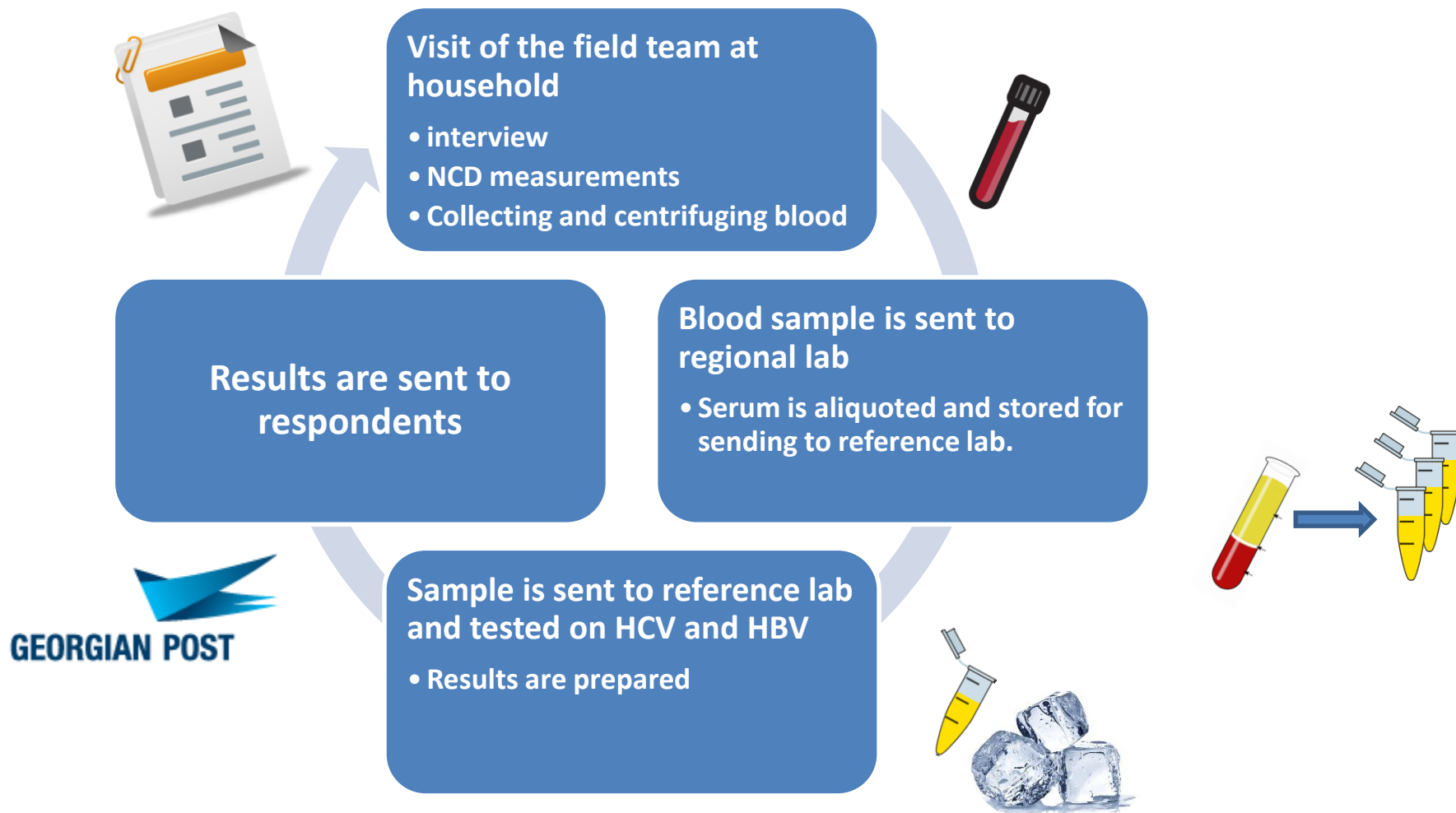
5 Team Leads

20 Interviewers

20 nurses



Samples- from field to lab and back



HCV Prevalence by Key Demographic Variables

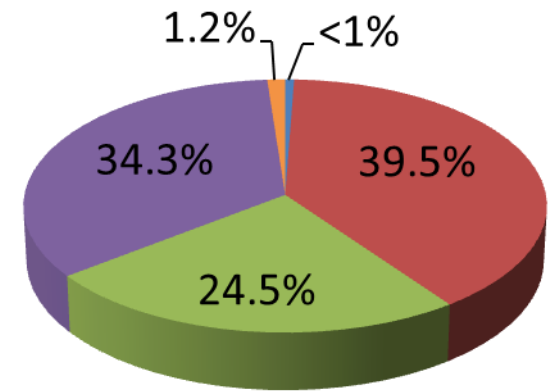


HCV & HBV Prevalence

- ✓ Total number of interviews – 6330 (90% response rate)
- ✓ Total number of blood samples – 6011 (86% response rate)

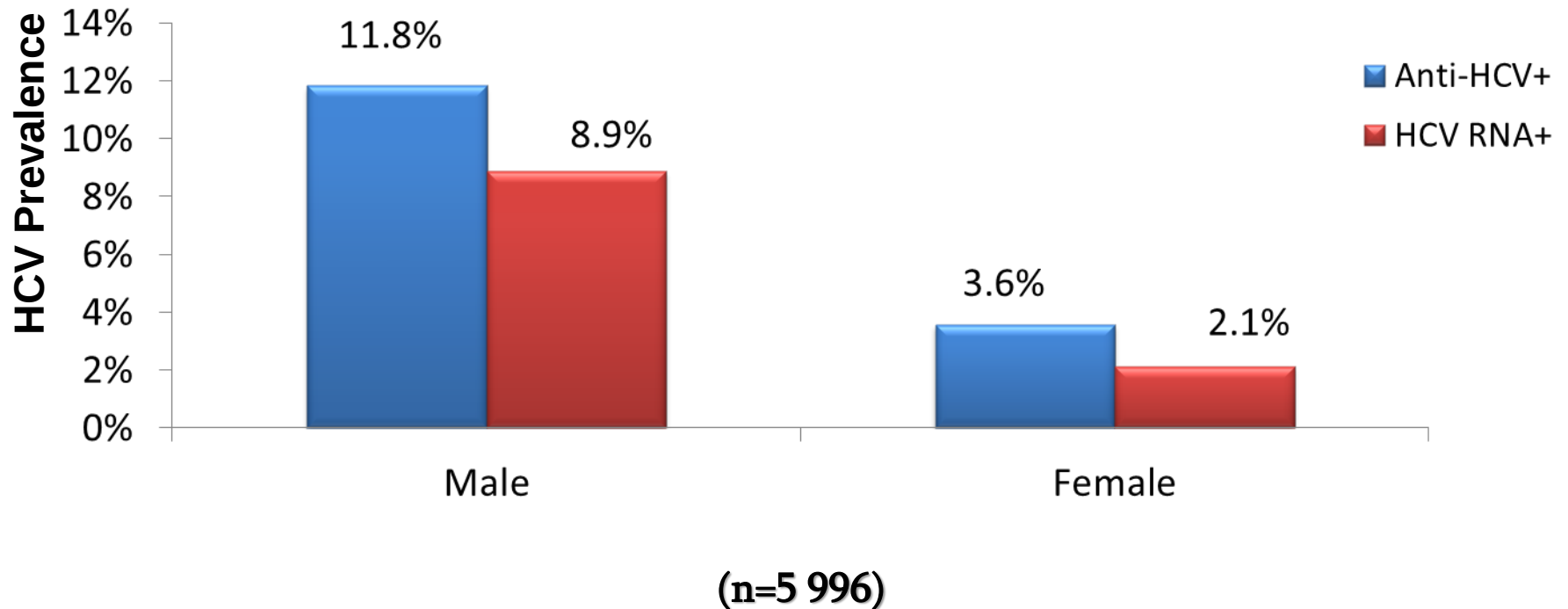
Characteristic	n	%	Estimated # nationwide ≥18 years
Anti-HCV+	425	7.5%	208,800
HCV RNA+	311	5.3%	147,552
Anti-HBc+	1634	25.5%	709,922
HBsAg+	188	2.9%	80,736
HBV/HCV co-infected (HBsAg+/HCV RNA+)	12	0.29%	8,074
HBV/HCV co-exposure (anti-HBc+/anti-HCV+)	189	3.2%	89,088

HCV Genotype Distribution

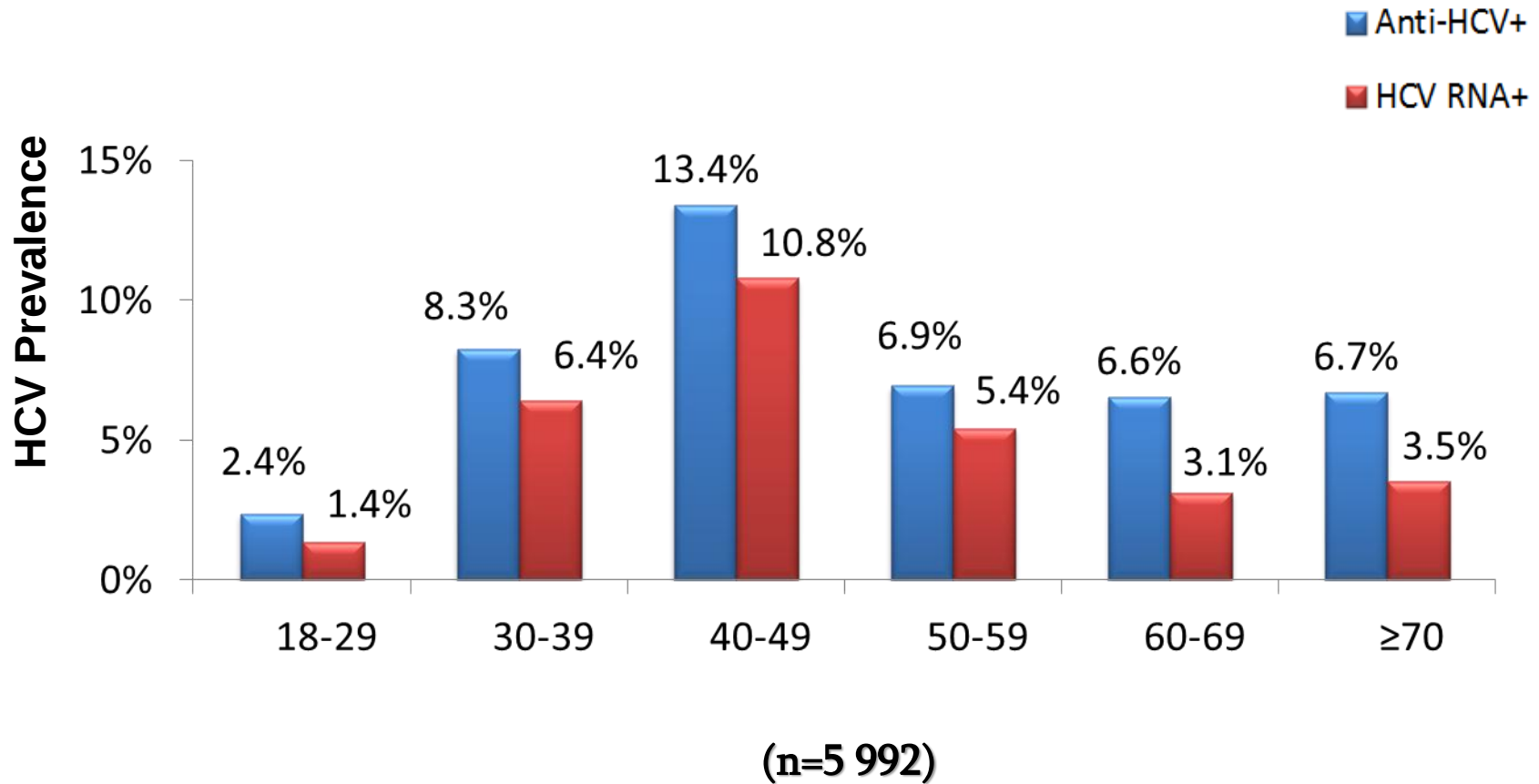


- HCV GT1a
- HCV GT1b
- HCV GT2
- HCV GT3
- HCV GT Indeterminate

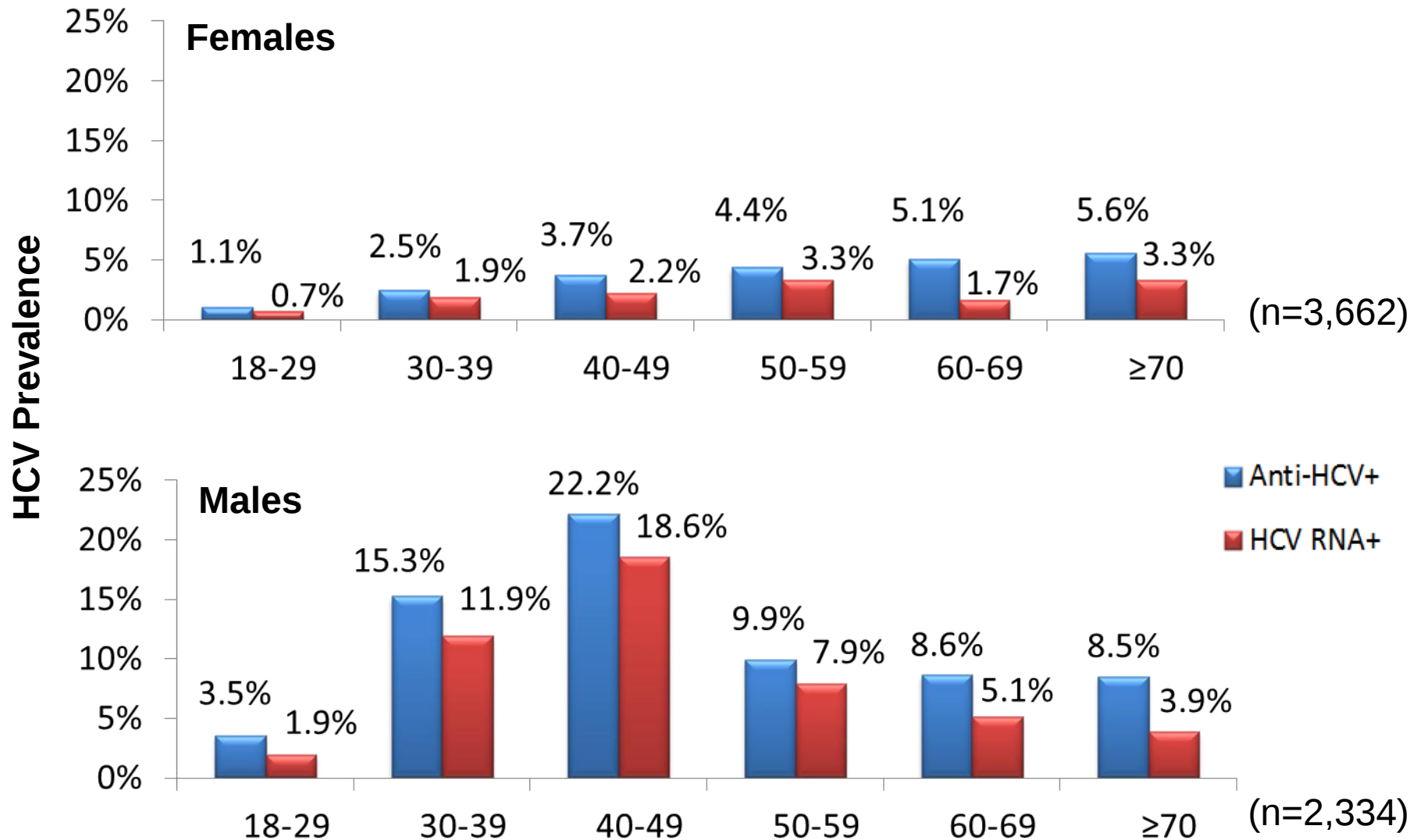
HCV Prevalence by Gender



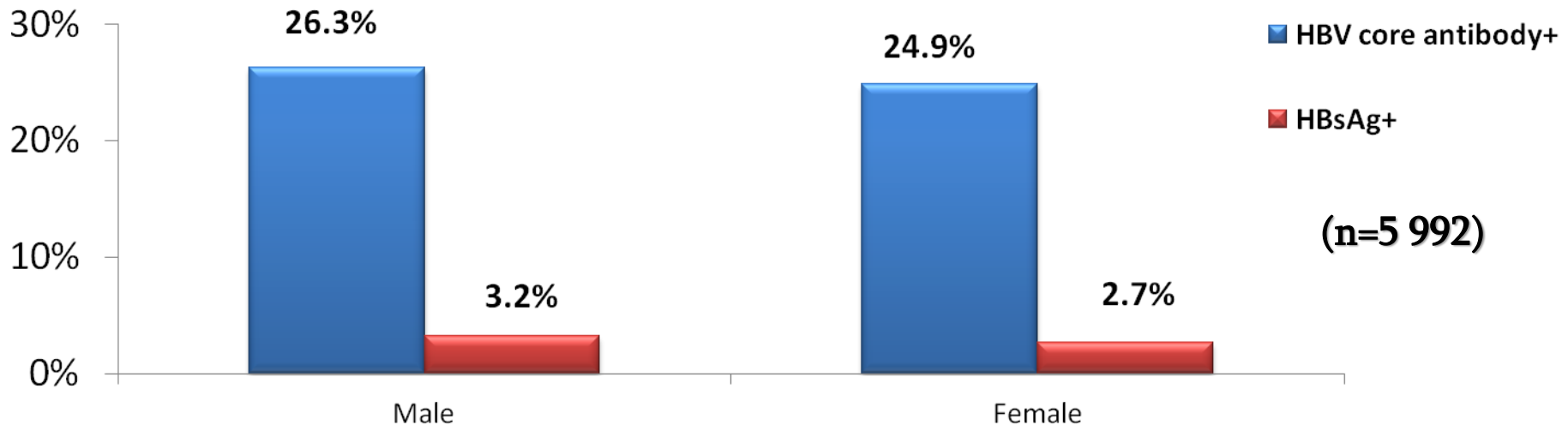
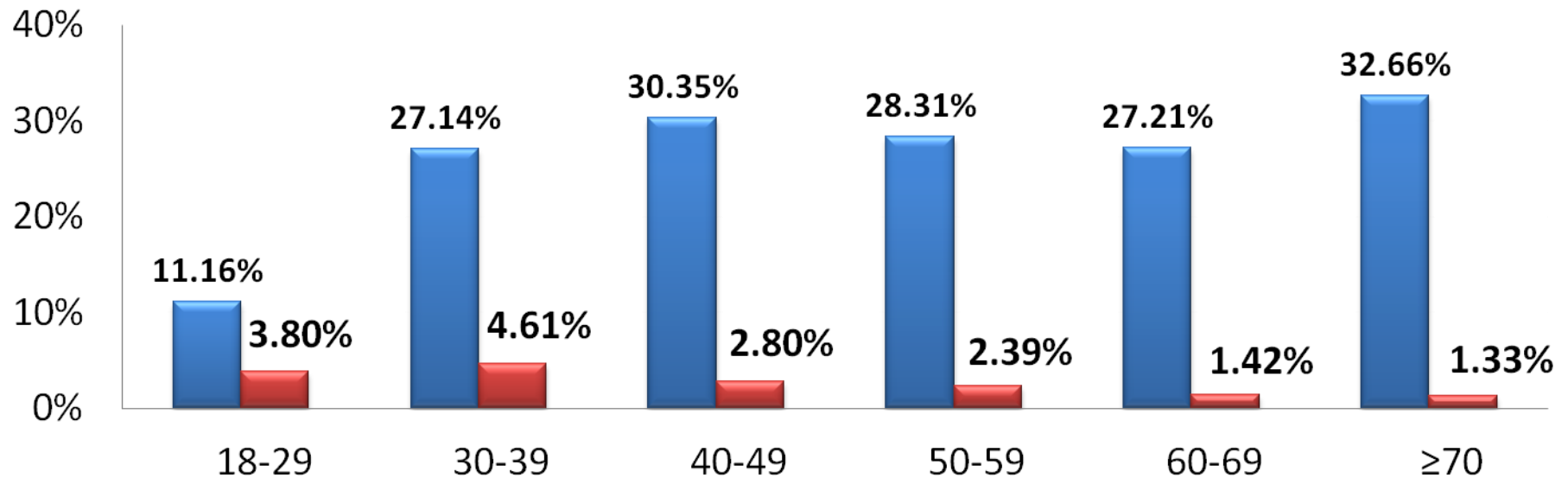
HCV Prevalence by Age



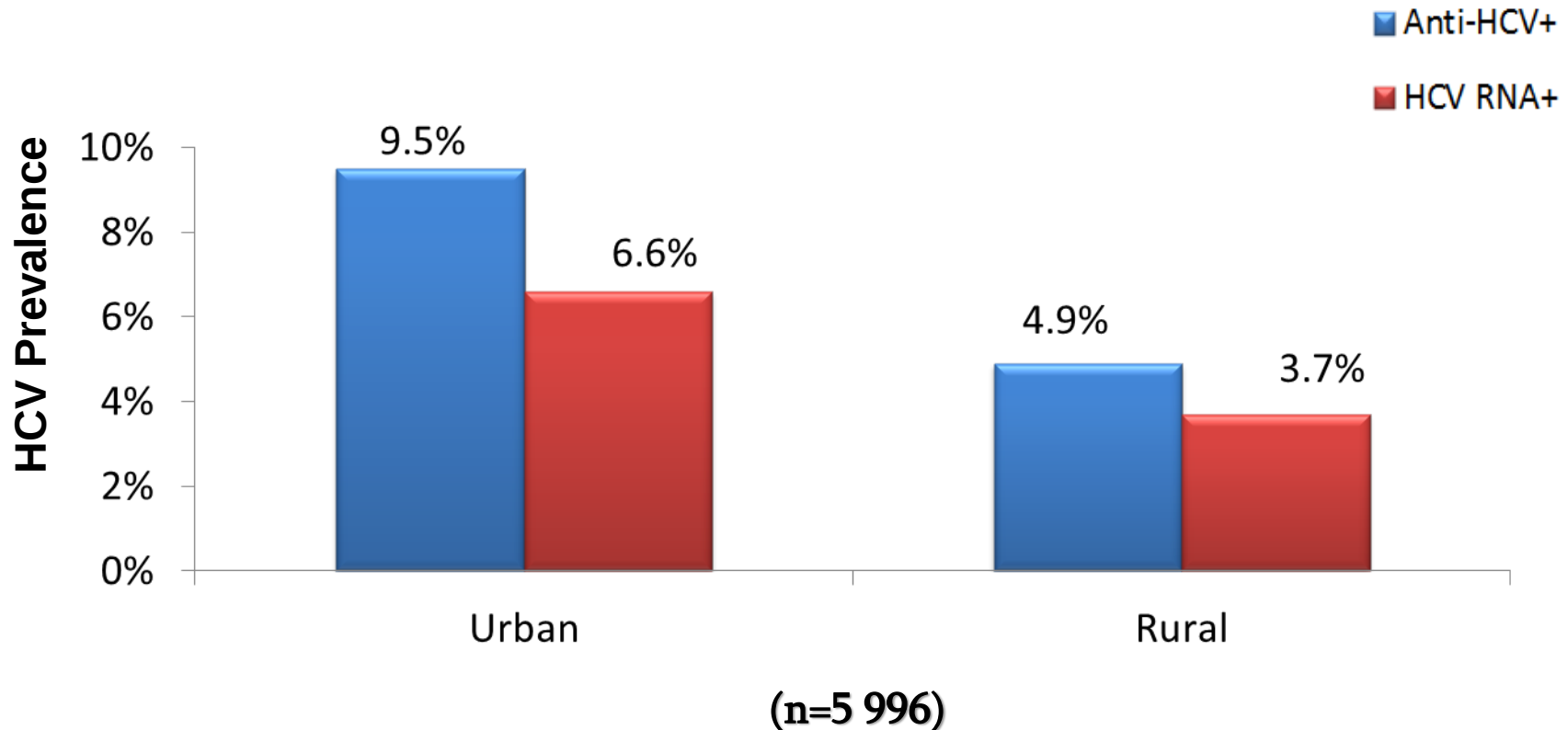
HCV Prevalence by Age and Gender



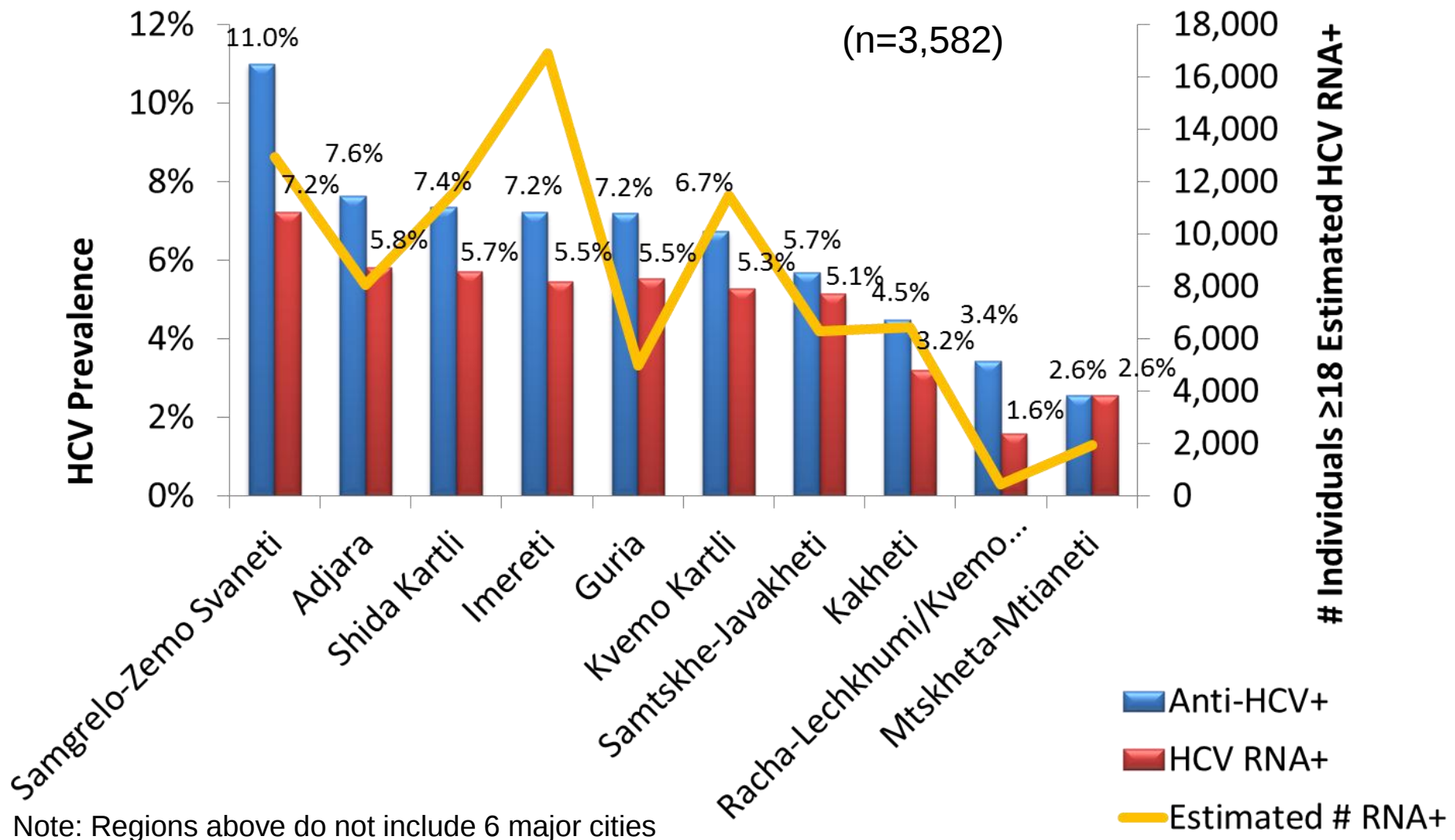
HBV Prevalence by Age and Gender



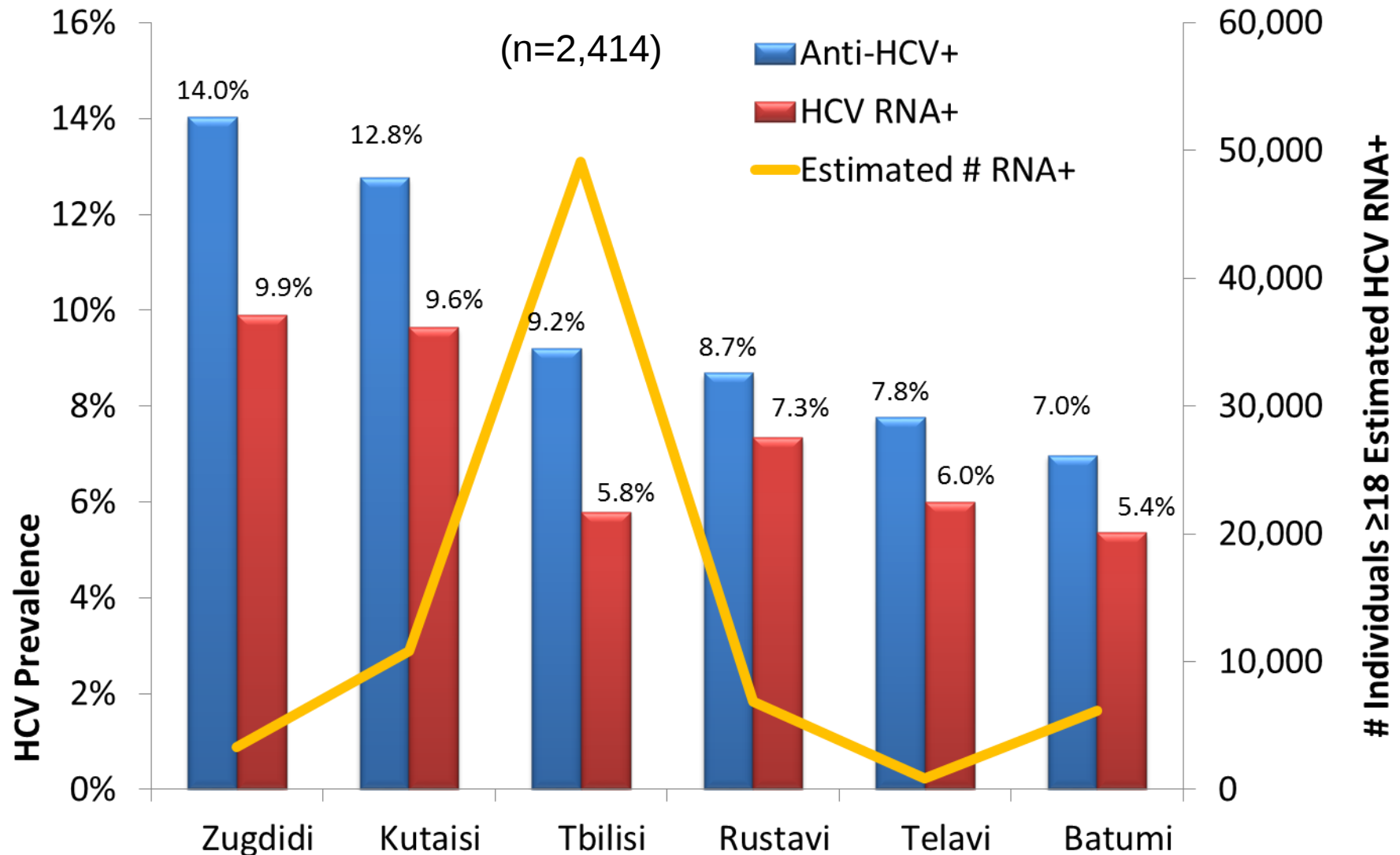
HCV Prevalence by Urban/Rural Residence



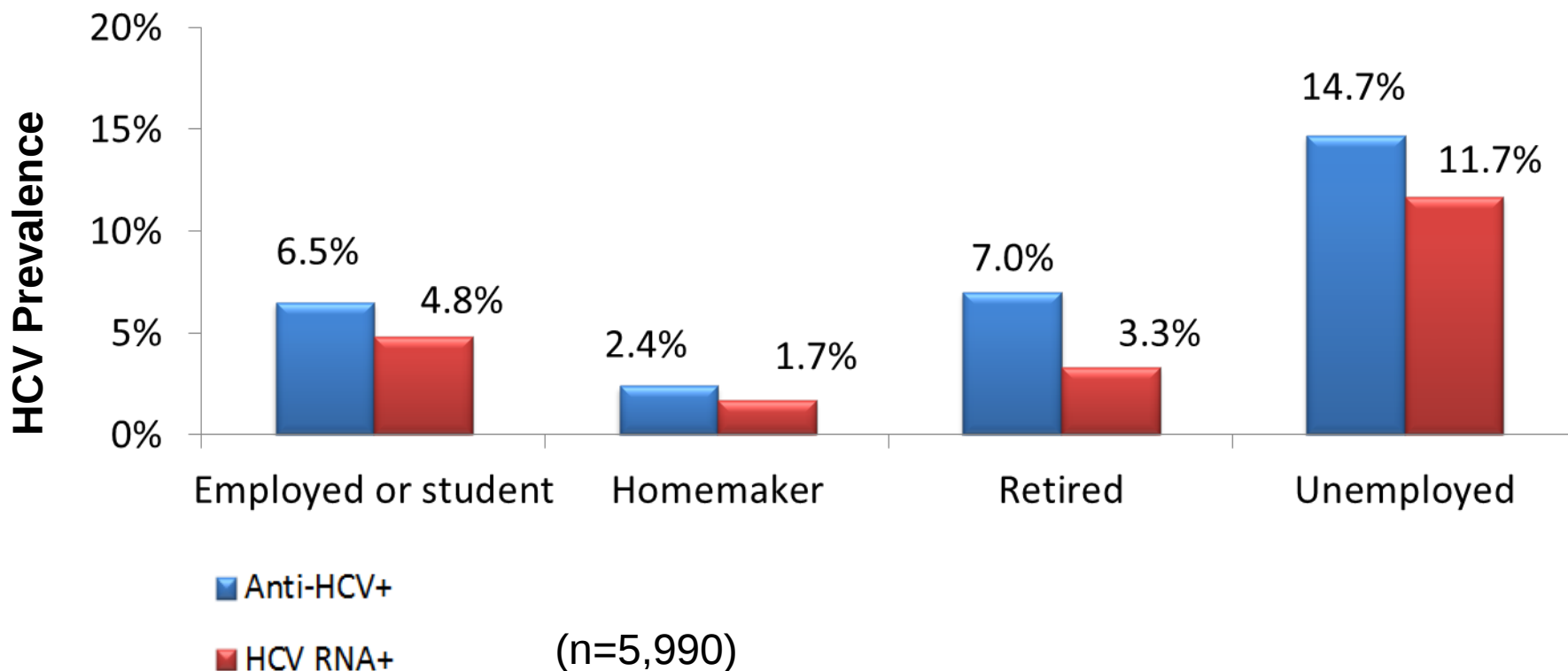
HCV Prevalence and Estimated # RNA+ by Region



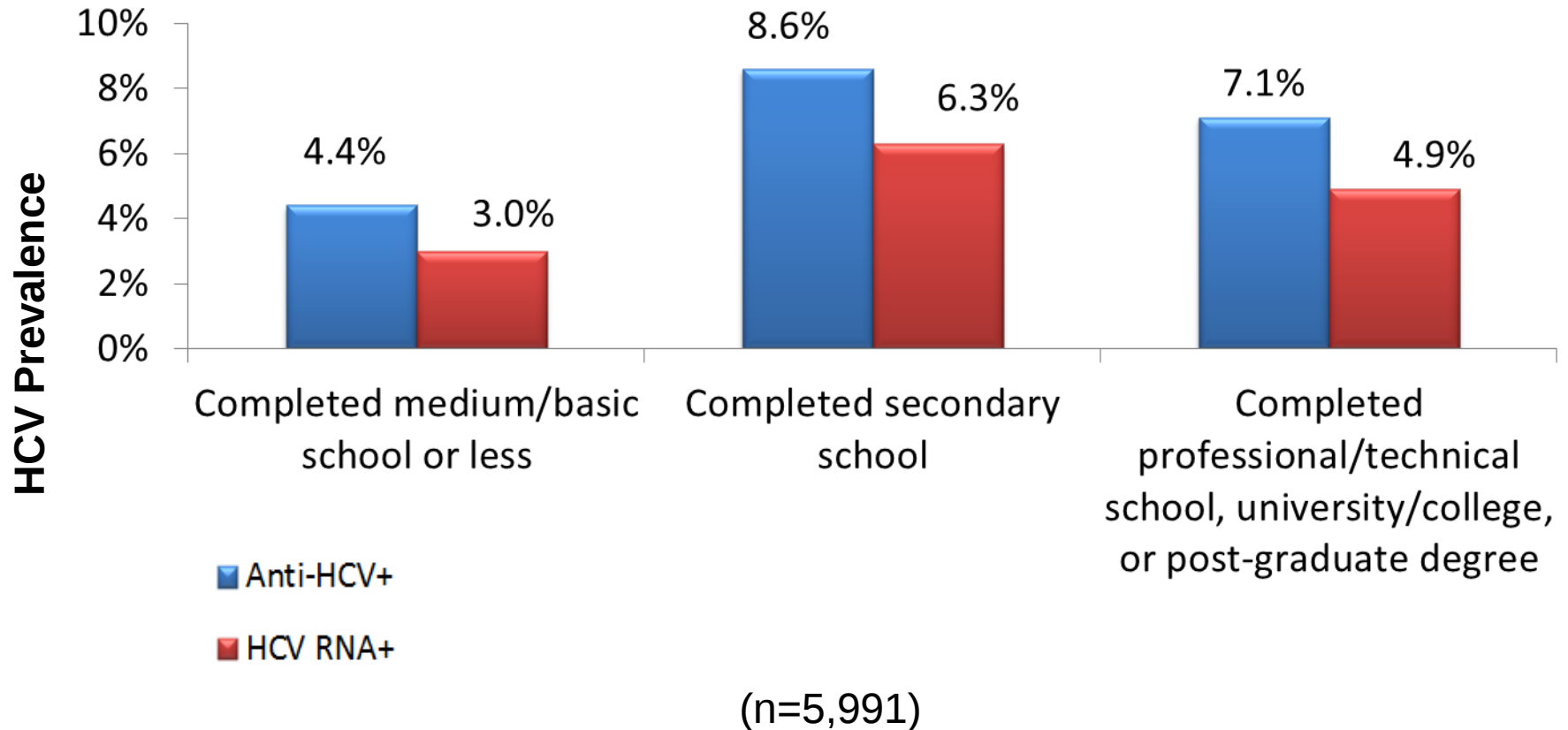
HCV Prevalence and Estimated # RNA+ by City



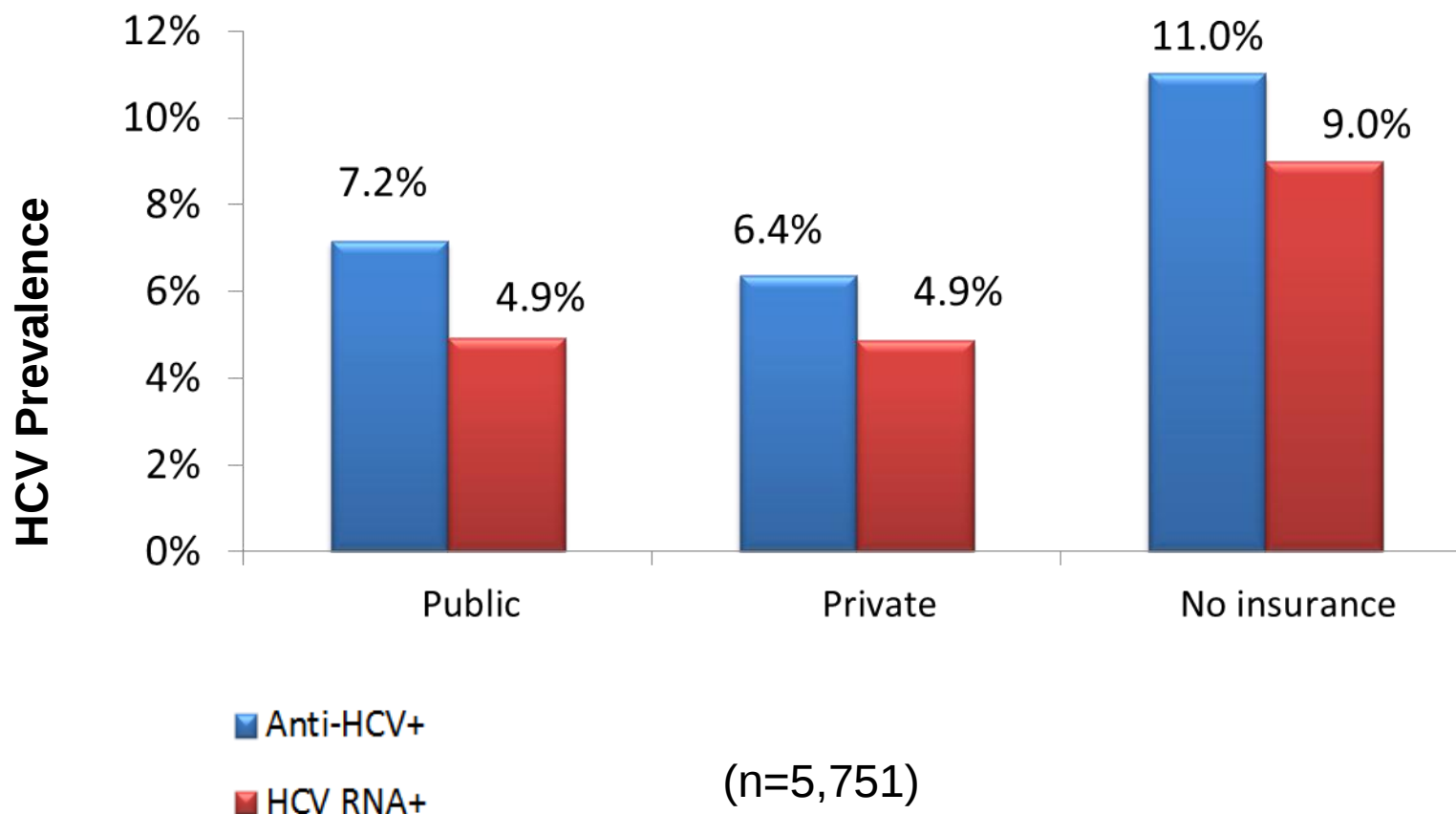
HCV Prevalence by Employment Status



HCV Prevalence by Education



HCV Prevalence by Insurance Status



Characteristics associated with anti-HCV+ status

Characteristics associated with anti-HCV+ status in multivariable analysis

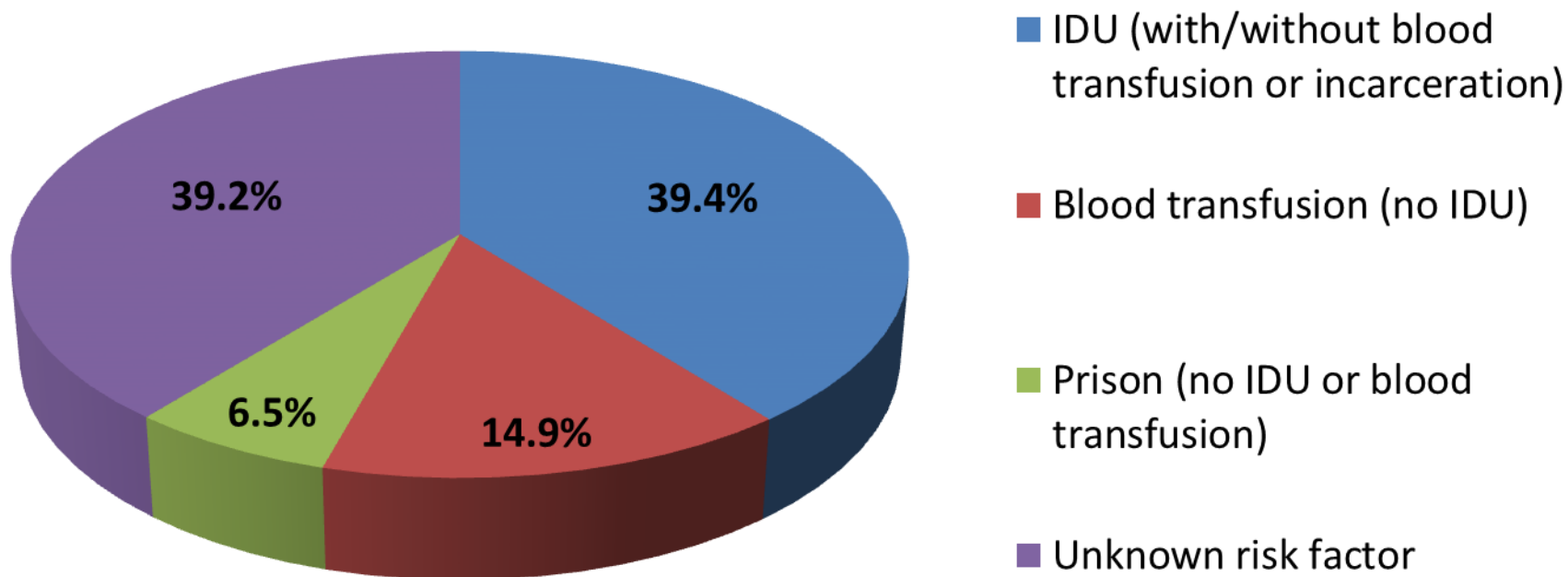
Characteristic	OR (95% CI)	AOR (95% CI)
Male gender	3.62(2.58, 5.07)	1.81 (1.29, 2.56)
Urban residence	2.03 (1.51, 2.75)	1.71 (1.24, 2.36)
Age		
18-29	1	1
30-39	3.73 (2.07, 6.74)	3.50 (1.55, 7.90)
40-49	6.42 (3.74, 11.03)	4.16 (1.98, 8.73)
50-59	3.09 (1.61, 5.91)	3.71 (1.68, 8.19)
60-69	2.91 (1.49, 5.67)	3.96 (1.72, 9.12)
70+	2.99 (1.4, 6.35)	5.14 (2.24, 11.80)
History of blood transfusion	3.88 (2.64, 5.71)	4.17 (2.50, 7.0)
History of injection drug use	40.64 (25.34, 65.18)	25.14 (14.36, 44.01)
History of incarceration	11.07 (7.26, 16.88)	3.88 (2.19, 6.89)

All variables control for all others in the model.

Variables that were tested but were not significant in multivariable analysis: # tattoos, # piercings, # injections in last 6 months, # IV infusions in last 6 months, # lifetime sexual partners, frequency of dental cleanings, history of military service, history of STI, history of TB, education, income, employment status

% Anti-HCV+ with Risk Factors Significant in Multivariable Analysis

- **39.2% of those anti-HCV+ do not report one of the risk factors that were significant in multivariable analysis**

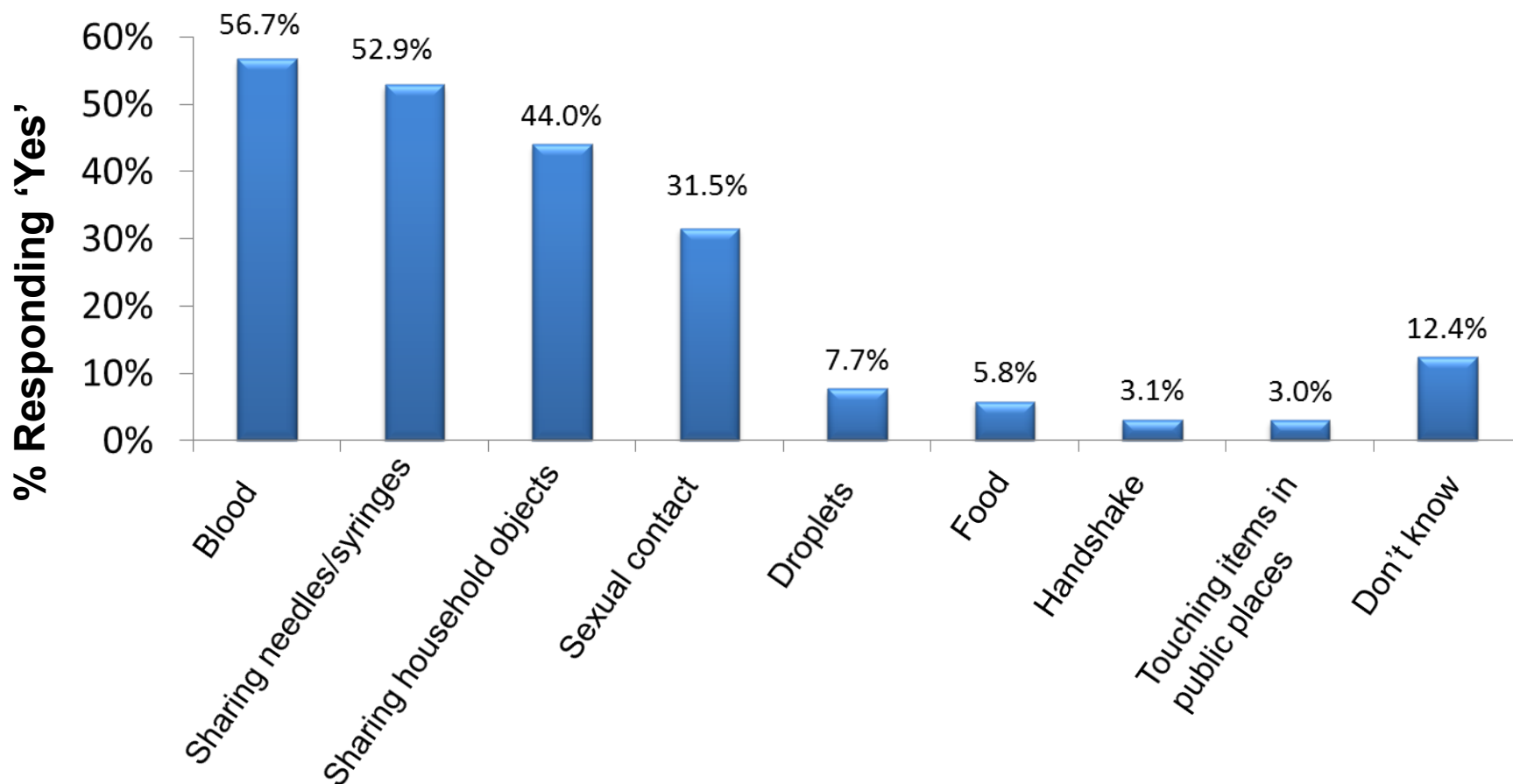


Communication & Education Efforts

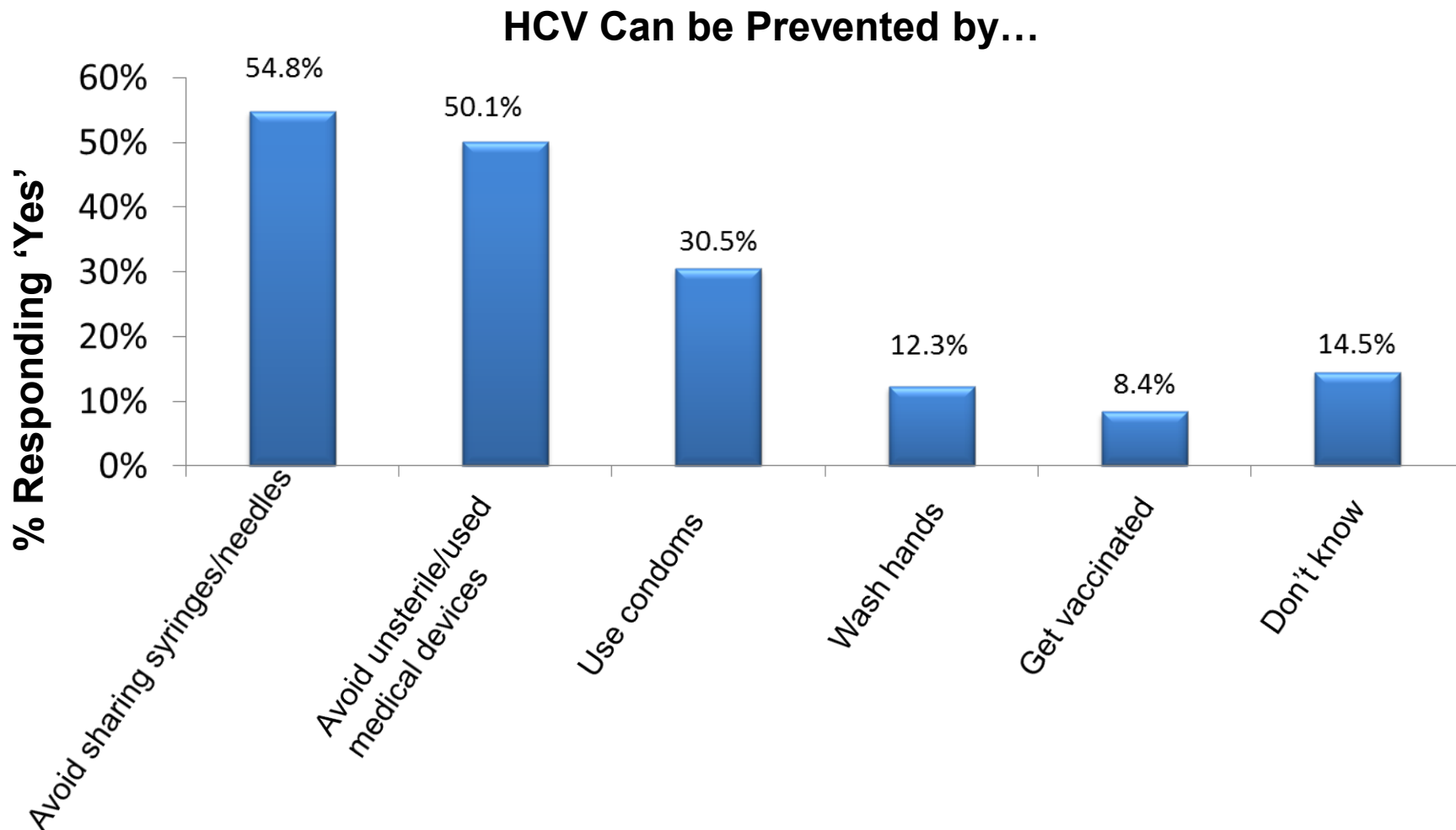


Awareness of HCV Modes of Transmission

HCV Can be Transmitted by...

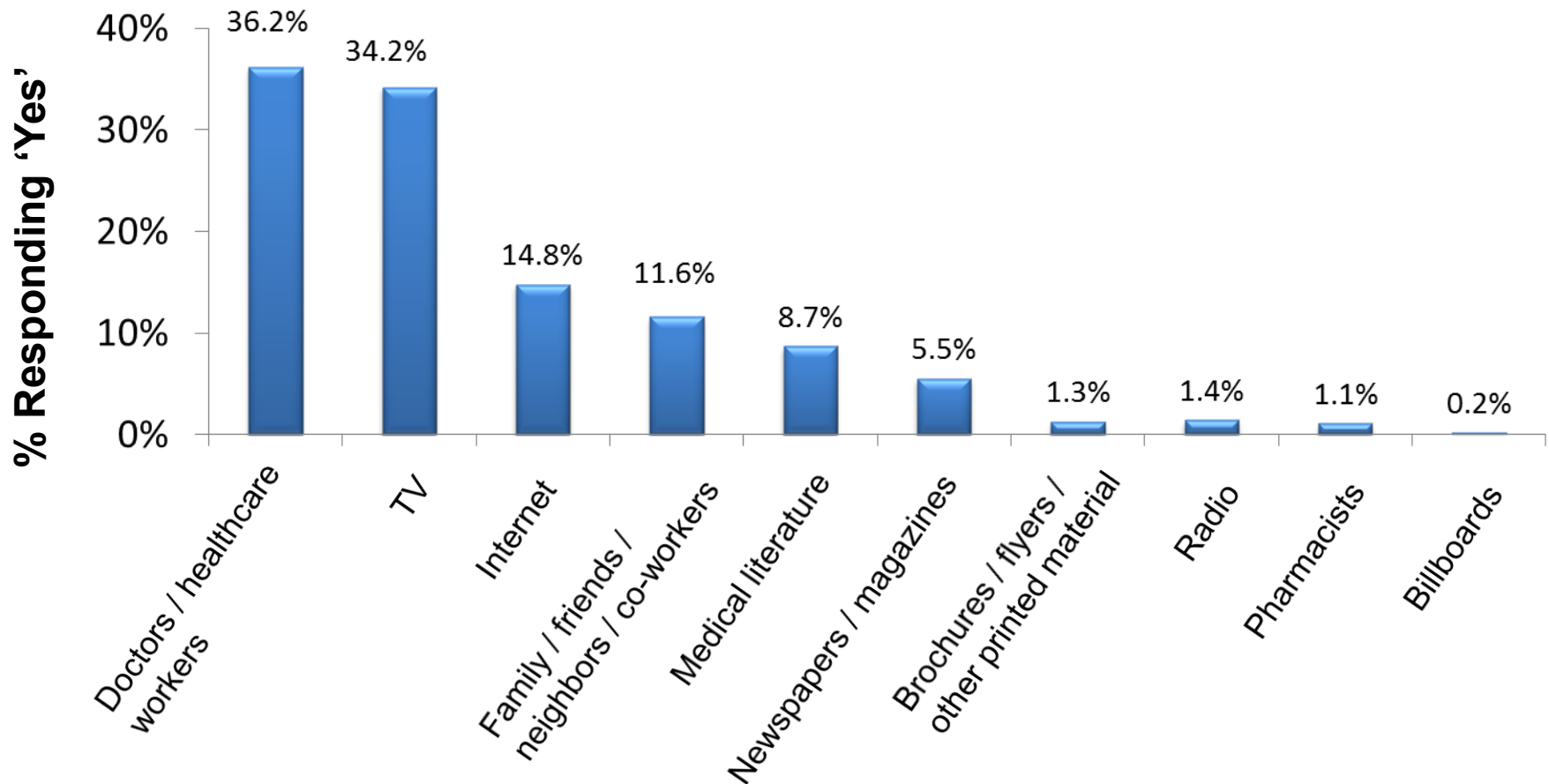


Awareness of HCV Prevention Strategies



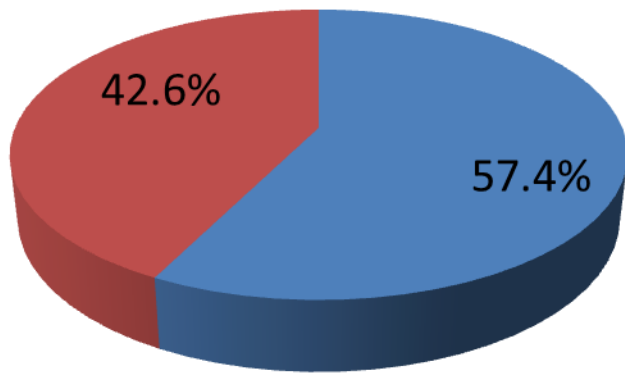
Trustworthy Sources of Health Information

Where do you go for health information that you trust?

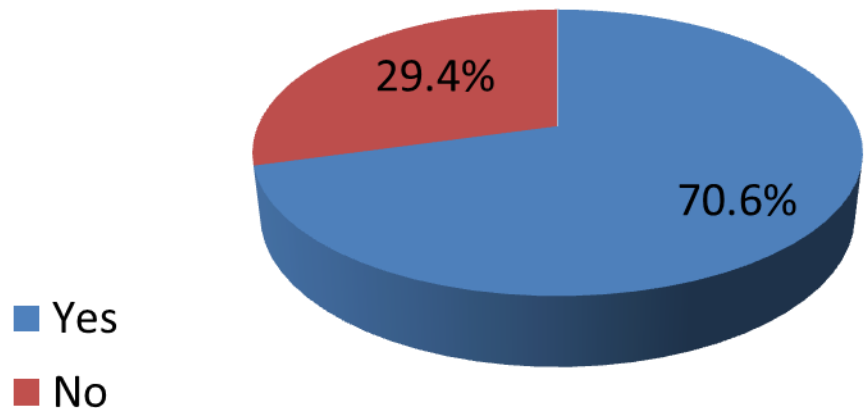


HCV awareness and knowledge

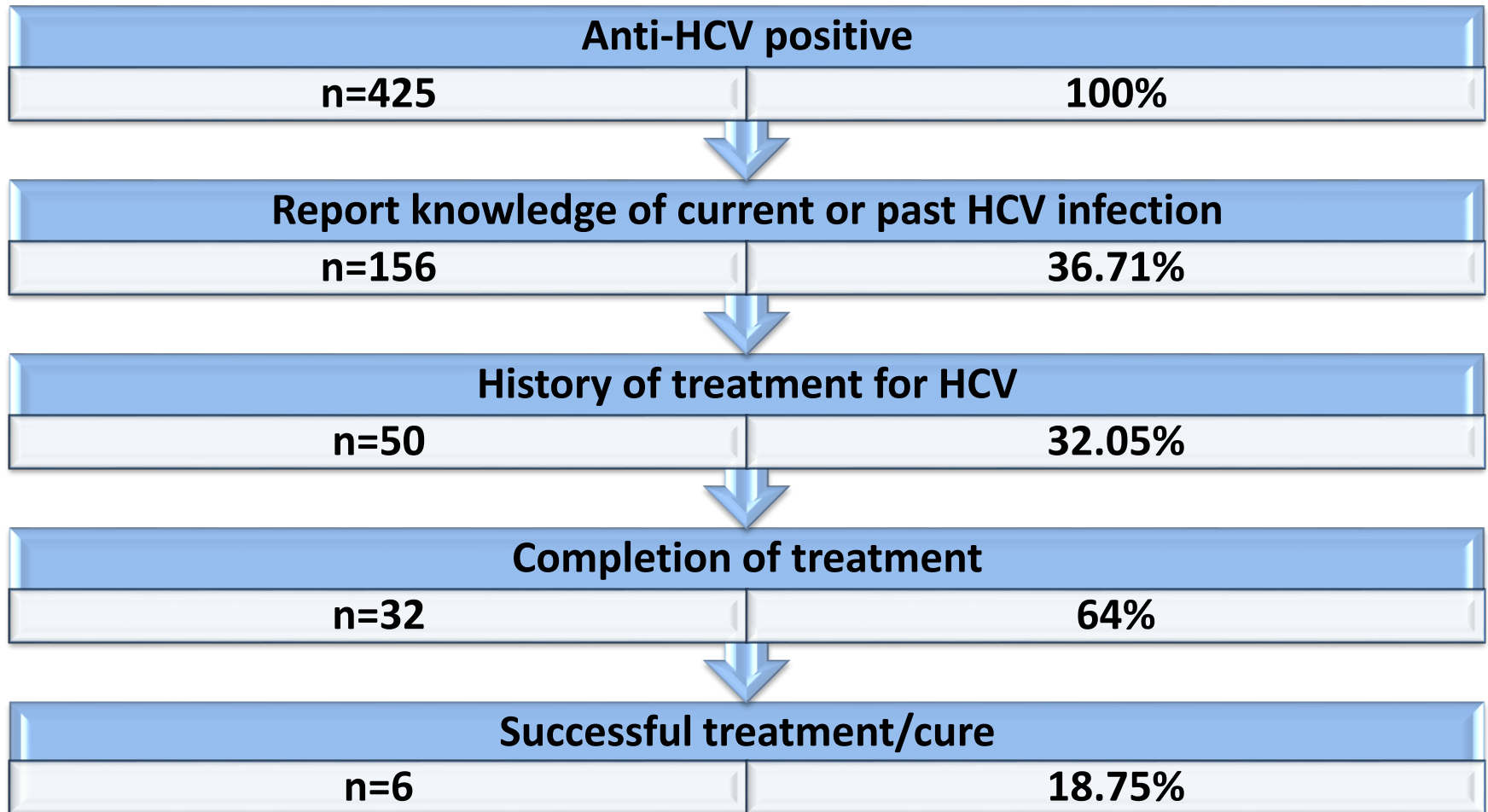
Aware that HCV can be asymptomatic



Aware that HCV can be treated (as of summer 2015)

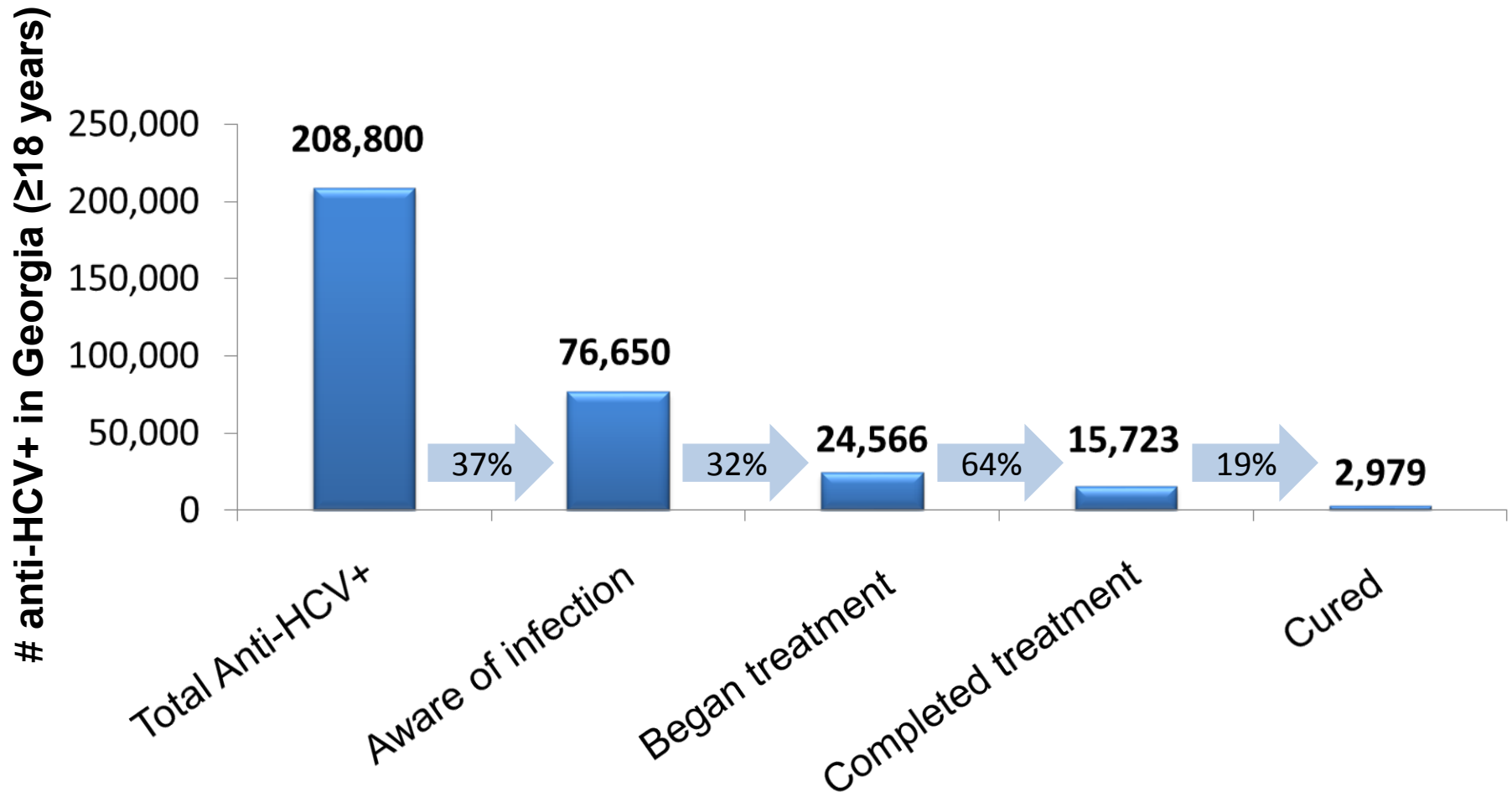


Self-reported HCV care among anti-HCV positive respondents



Note: 14 anti-HCV negative respondents reported previous HCV diagnosis

Self-reported HCV Care Cascade Extrapolated to All anti-HCV+ in Georgia



Limitations of Preliminary Results

- Additional analyses will be conducted to identify potential selection bias among respondents
- Multivariable model is not yet completed
- Later steps in HCV care cascade may not be reliable:
 - Self-reported
 - Data collection was concurrent with Phase 1 of the Elimination Plan, so more anti-HCV+ individuals may have been treated at this point
- HBV analyses not yet conducted

Conclusions

- High HCV prevalence (7.5% anti-HCV+/5.3% RNA+)
 - Consistent with estimates from previous studies
 - Results in an estimate of 147,552 chronic infections nationwide
- Greater HCV burden among males and urban residents
- Birth cohort effect among males
 - Highest HCV prevalence is among 30-39 year-old (11.9% anti-HCV+) and 40-49 year-old males (18.6% anti-HCV+)
 - Some concurrence with 2002 Tbilisi study, where the highest prevalence is among 18-28 year-olds (now 32-42 year-olds)
- Greatest HCV burden is in Tbilisi

Conclusions

- Risk factors significantly associated with anti-HCV+ status:
 - History of IDU
 - History of blood transfusion (pre and post 1997)
 - History of incarceration
- Medical and dental exposures were not identified as risk factors significantly associated with anti-HCV+ status in multivariable analysis
- However, 40% of anti-HCV+ individuals had an unknown risk factor
- There is moderate awareness of HCV transmission and prevention modes

Conclusions

- Awareness of HCV treatment availability is high, and may be higher now due to the publicity of STOP-C
- Only 1/3 of those anti-HCV+ are aware they have ever been infected

Implications for Phase 2 of HCV Elimination Plan

- Serosurvey results can help inform screening strategies
 - Only 1/3 of anti-HCV+ individuals are aware of their infection status - provides further evidence for the need to enhance screening efforts
 - Identifies high prevalence geographic areas and populations to target in order to maximize screening yield
- Can inform prevention strategies
 - Education & awareness campaigns
 - Targeting risk factors with strongest associations with anti-HCV+ status, and most prevalent in the population
- Serosurvey establishes baseline to measure progress toward HCV elimination in the future

Acknowledgement



Ministry of Labor, Health and Social Affairs



Centers for Disease Control and Prevention
(CDC)



National Statistics Office of Georgia



Survey Team





HCV Serosurvey 2015



Questions

