National HSS among ANC and MSM 2014

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Support by

HIV Strategic Information

- HIV strategic information is vital for the design and the implementation of HIV/AIDS programs

- In the past, NCHADS has been collecting those information by using different methods; passive and active data collection

- Active surveillance system consists of
  - HIV sentinel surveillance (HSS)
  - Behavioral surveillance survey (BSS)
  - STI surveillance survey (SSS)

- One of the main use of information collected through active surveillance is to estimate HIV prevalence among the Cambodian general population

What is HIV Sentinel Surveillance (HSS)?

- HSS is HIV sero-prevalence survey among some targeted population over time

- HSS data have been used for monitoring the spread of the epidemic as well as for estimating and projecting the HIV prevalence among the general population in Cambodia.

- This 11th round of HSS have been conducted by the NCHADS with technical and financial supports from developing partners

History of HSS in Cambodia

Years	HSS 1996	HSS 1997	HSS 1998	HSS 1999	HSS 2000	HSS 2002	HSS 2003	HSS 2006	HSS 2010	HSS 2014
Province #	18	22	19	20	21	20	22	22	22	22
DSWs	X	X	X	X	X	X	X	X	EWs	-
IDSWs	-	-	X	X	X	X	X	-	EWs	-
POLICE	X	X	X	X	X	X	X	-	-	-
ANC	X	X	-	X	X	X	X	X	X	X
MSM	-	-	-	-	-	-	-	-	-	X

*EWs: include both DSWs and IDSWs and considered as one groups

Objectives

- To estimate HIV prevalence in two sentinel groups: women attending ANC clinics and MSM

- To compare the HIV prevalence in the routine PMTCT program and the ANC sentinel surveillance

- To provide data needed for estimating HIV infection in the general population, trend analysis, monitoring, and program planning

- To conduct a population size estimation for men who have sex with men **(in a separate presentation)**

Methods

- Study design: Cross sectional study

- Sentinel groups:
  - Pregnant women attending antenatal clinics (ANC)
  - Men who have sex with men (MSM)

- Sentinel sites:
  - 22 cities/provinces (PC/RD) for ANC
  - 8 cities/provinces for MSM

- Sample size:
  - ANC: **880 per province/city** (440 from PC & 440 from RD)
  - MSM: **~ 200 per province/city, but ~400 in Phnom Penh**

ANC: 22 sentinel provinces

MSM: 8 provinces: PNP, BTB, BMC, SRP, KPC, KDL, SHV
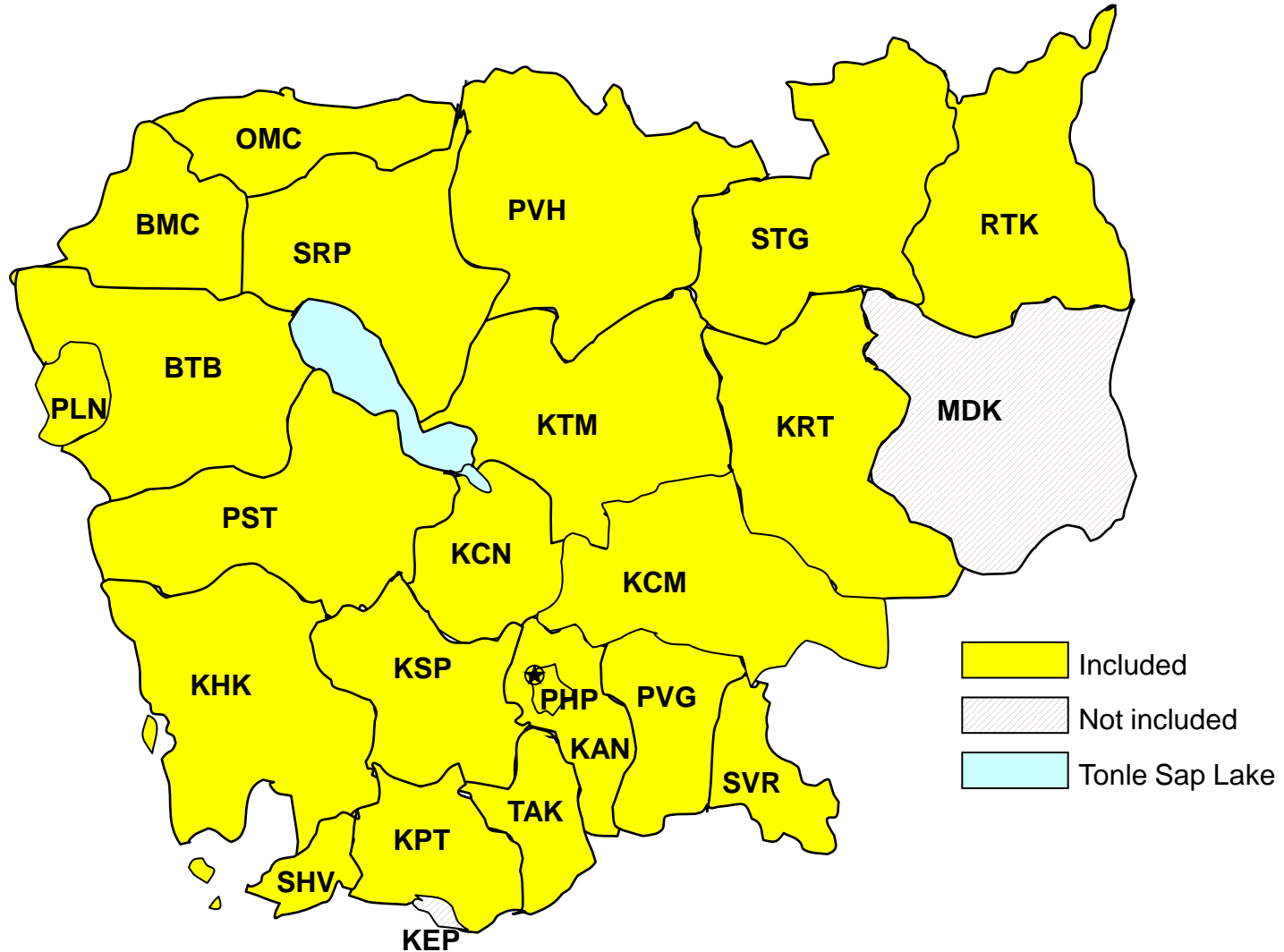
Data collector training

- 2-stage training
  - **Stage 1**: At PNP, Surveillance team, NCHADS trained PASP staff
  - **Stage 2**: At province, PASP staff trained ANC and MSM teams separately under NCHADS supervision

- Training contents
  - Eligibility criteria; sampling technique
  - Informed consent procedures;
  - Specimen collection, processing, and transport;
  - Record keeping and completion of forms (demographic information, and specimen information sheet)

Regional laboratory training

- Phlebotomy and use of vacutainer system

- Dried blood spot (DBS) card preparation

- Specimen handling, storage, and transport

- Record keeping and completion of specimen information sheet and specimen ID and test results

Data collection process

- Similar procedure for both ANC and MSM

  - Informed consent for each participant (both for blood and questionnaire)

  - Short questions on demographic information

  - Specimen collection:

    - **5-10 ml** of whole blood for HIV rapid test at provincial lab

    - DBS card for QC (Transport and stored at NCHADS lab under -80C)

- Thank you gift for participants with equivalent to US$2

Methods: Actual sample size by survey years

	2000	**2002**	**2003**	**2006**	**2010**	**2014**
Provinces	21	20	22	22	22	22
EWs	--	--	--	--	4,265	--
DFSW	2,180	2,110	2,411	2,266	--	--
IDFSW	1,799	1,232	1,633	--	--	--
Police	4,711	4,379	5,796	--	--	--
ANC	6,562	9,168	10,867	12,464	17,200	19,042
MSM	--	--	--	--	--	1,646
Total	15,252	16,889	20,707	14,730	21,465	20,688

Sampling: Pregnant women attending ANC

- Separate samples of 440 women were selected from PC and 440 RD

- In Phnom Penh, all 880 women were recruited

- Pregnant women were **selected consecutively** from designated ANC clinics or health centers until the required sample size was reached

- Duration of data collection was limited to **3 months**

Sampling for MSM

- Time location sampling (TLS) approach

- Before the survey, a mapping exercise to develop a sampling frame (venues and hotspots where and when MSM congregate)

- Then, venues and specific dates/times were randomly selected for data collection

Methods: HIV testing

Tests performed at the provincial level

- **Two rapid tests** were used (Determine HIV 1/2 & Stat-Pak)
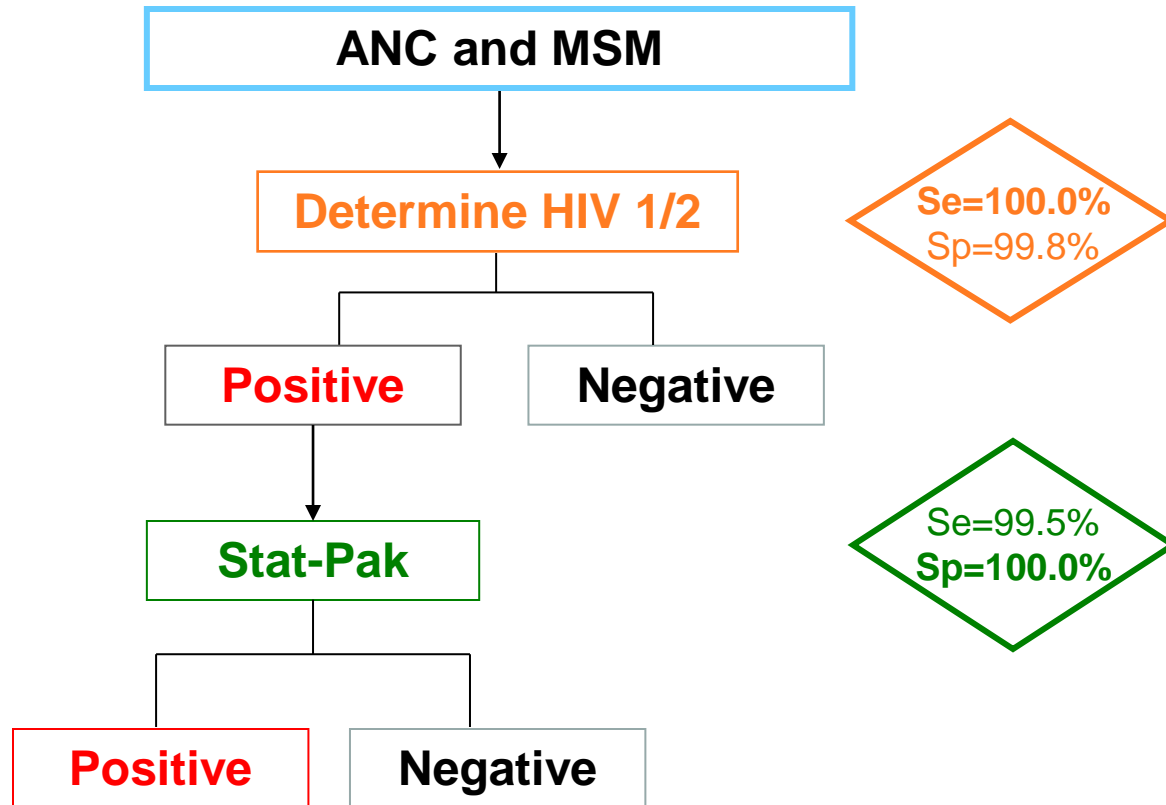- A serial two-test algorithm was used for ANC and MSM

Specimen was tested with:			
Determine HIV 1/2	**Stat-Pak**		**Interpret as HIV:**
Nonreactive	N/A	→	Negative
Reactive	Nonreactive	→	Negative
Reactive	Reactive	→	Positive

HIV Quality control testing

- QC was performed at NCHADS central laboratory

- All positive samples were tested

- 10% of all non-reactive specimens were tested

- **Two enzyme Immunoassays** (EIA) were used for QC (Vironostika HIV Uniform and Murex HIV- 1.2 .O)

Vironostika HIV	Murex 1.2.o		Interpret as HIV:
Nonreactive	N/A	→	Negative
Reactive	Nonreactive	→	Negative
Reactive	Reactive	→	Positive

HIV testing algorithm

ANC and MSM

↓

Determine HIV 1/2

Se=100.0%
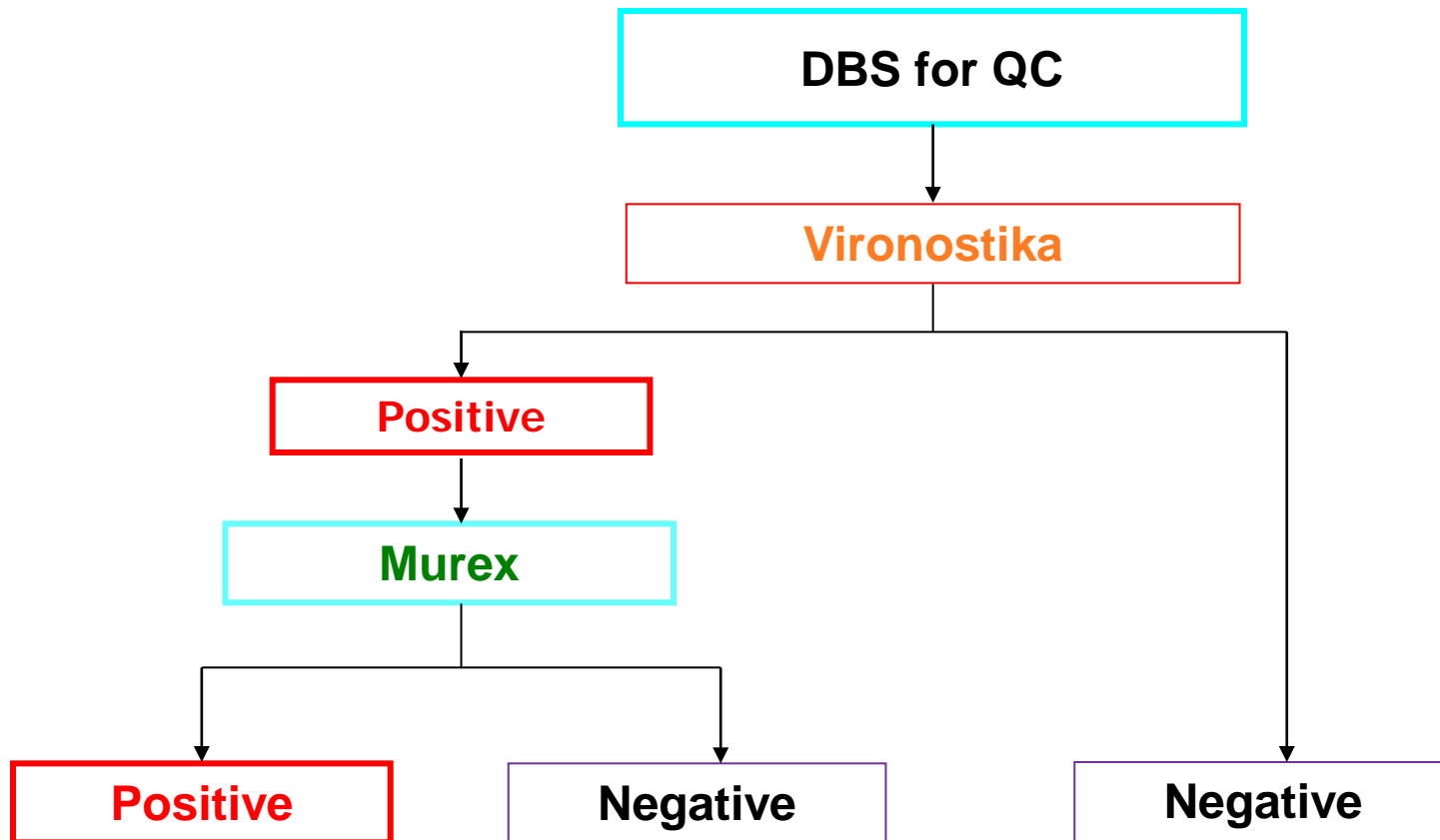Sp=99.8%

Positive   Negative

↓

Stat-Pak

Se=99.5%
Sp=100.0%

Positive   Negative

Sensitivity (Se) and specificity (Sp) data from phase 1 validation of 5 rapid HIV tests conducted in Cambodia in 2004. The combined algorithm was found to be 99.5% sensitive and 100% specific.

Quality control testing algorithm


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              ┌──────────────────┐
              │   DBS for QC     │
              └──────────────────┘
                       │
              ┌──────────────────┐
              │   Vironostika    │
              └──────────────────┘
               │                  │
        ┌────────────┐            │
        │  Positive  │            │
        └────────────┘            │
              │                   │
        ┌────────────┐            │
        │   Murex    │            │
        └────────────┘            │
         │          │             │
   ┌──────────┐ ┌──────────┐ ┌──────────┐
   │ Positive │ │ Negative │ │ Negative │
   └──────────┘ └──────────┘ └──────────┘
```

DBS: Dried blood spot (DBS) card; QC: Quality Control

Data analysis

- Data were analyzed with STATA 13

- HIV prevalence was adjusted for QC

- **For ANC**

  - HIV data were weighted for female population aged 15-49 years old in 2014 by province and stratification by PC and RD

- **For MSM**

  - Un-weighted analysis

Findings
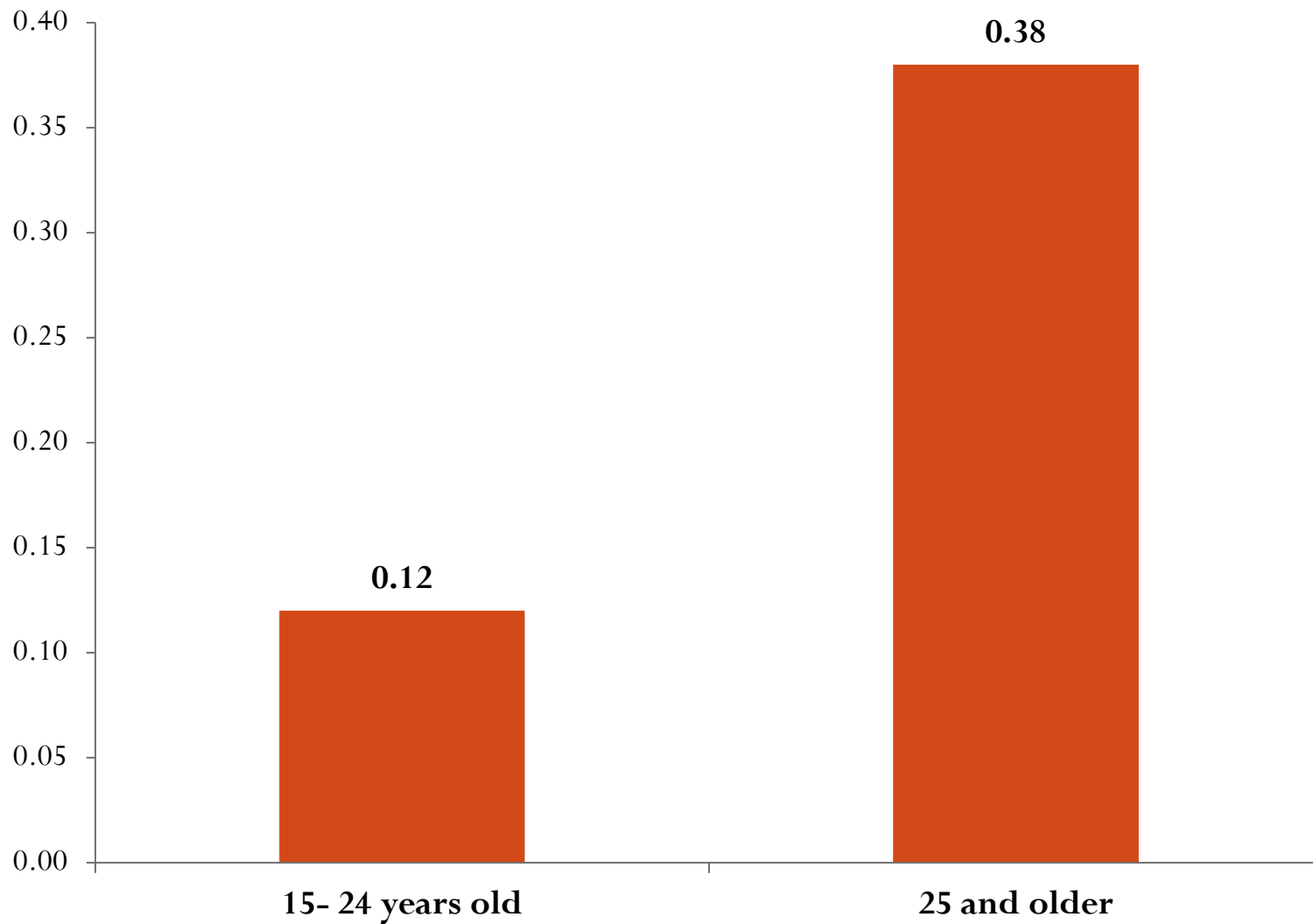
ANC women's characteristics and PMTCT

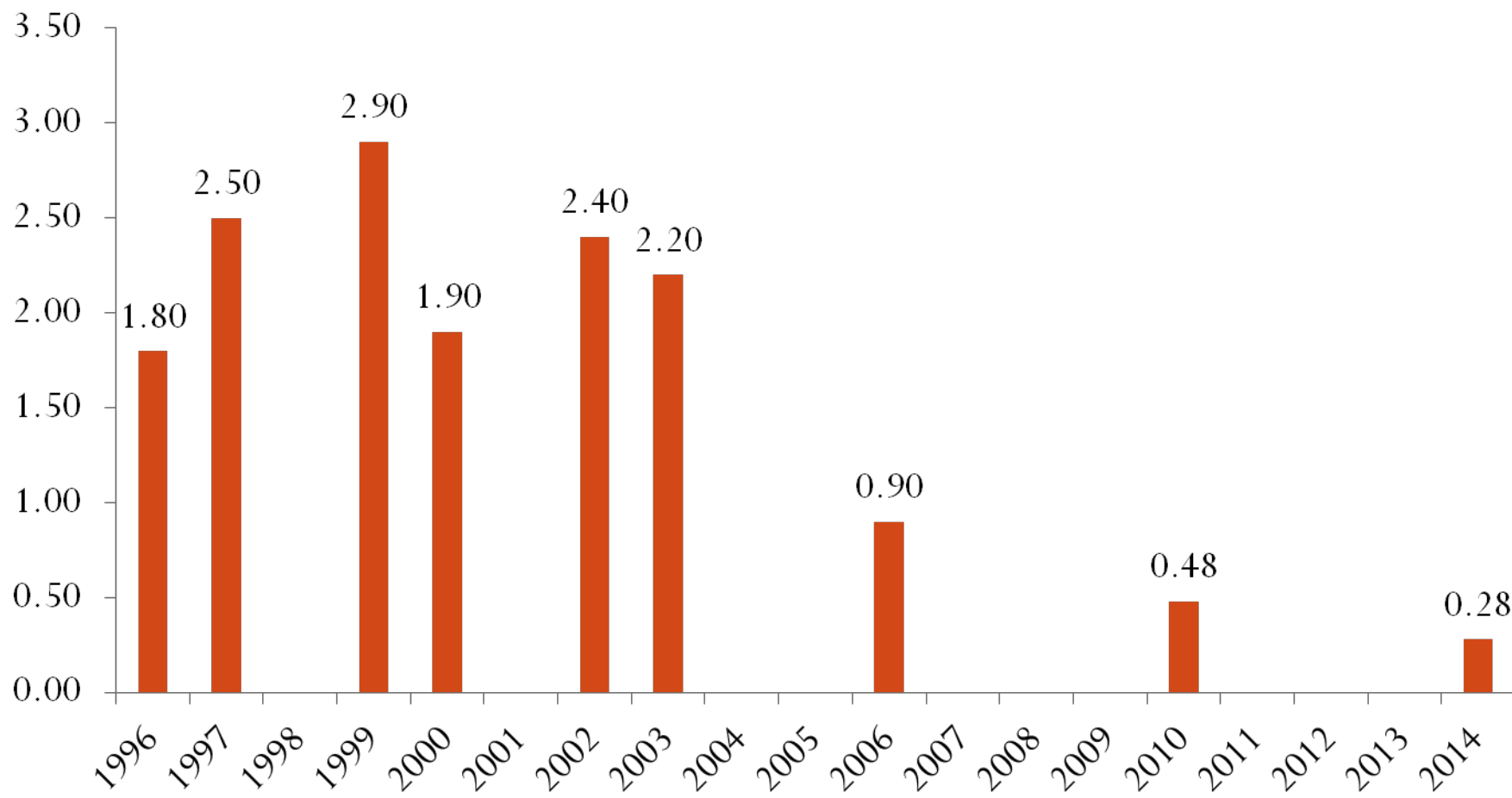| Characteristics	%	n
Mean age in year (median)	26.3 (26)	
Education		
No education	5.1	971
Mean year of educaton (median)	7.1 (7)	
Mean age of first sex (median)	21.7 (21)	
PMTCT		
Be aware of HIV status before pregnancy, N = 18847	59.7	11248
HIV (+) among women known their HIV status before pregnancy, N = 11248	**0.15**	17
ANC women with ART among HIV (+), N = 17	82.4	14
PMTCT HIV test offered at first ANC visit, N = 17	94.1	16
PMTCT HIV test result among those women, N = 15	93.3	14

HIV prevalence* among ANC in 2010 & 2014
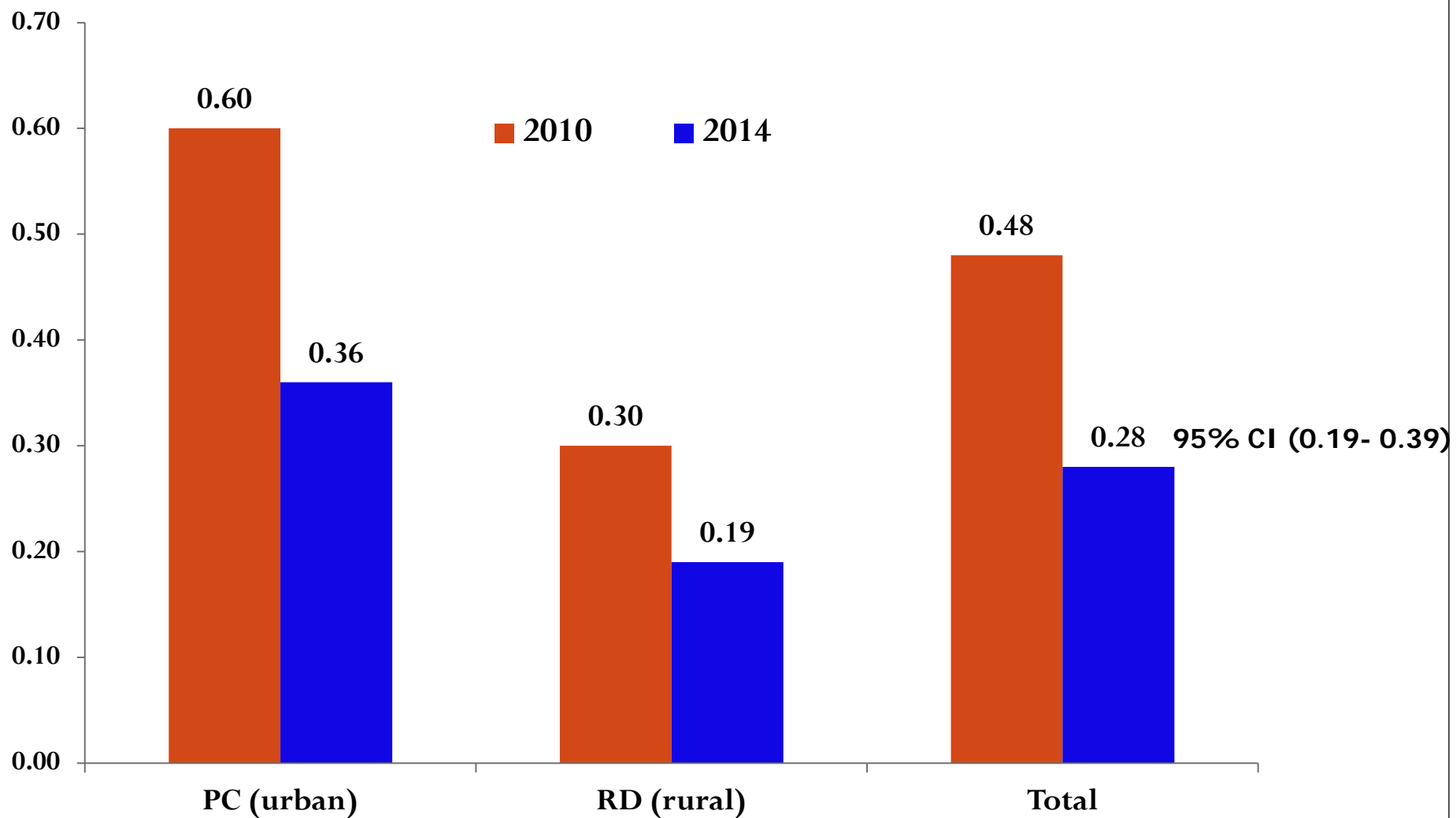
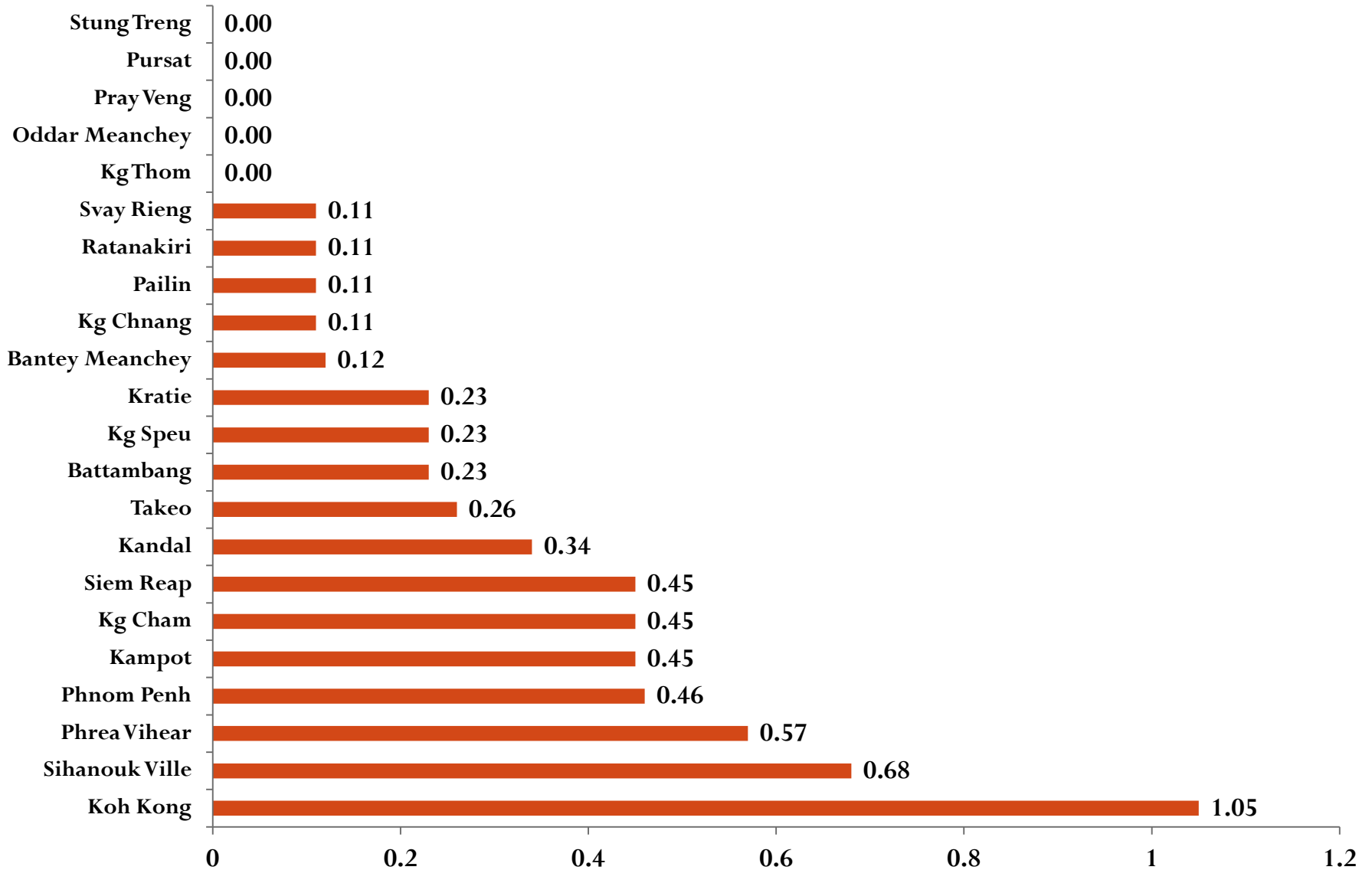* HIV prevalence was weighted for female population in each province

HIV Prevalence among ANC by age groups

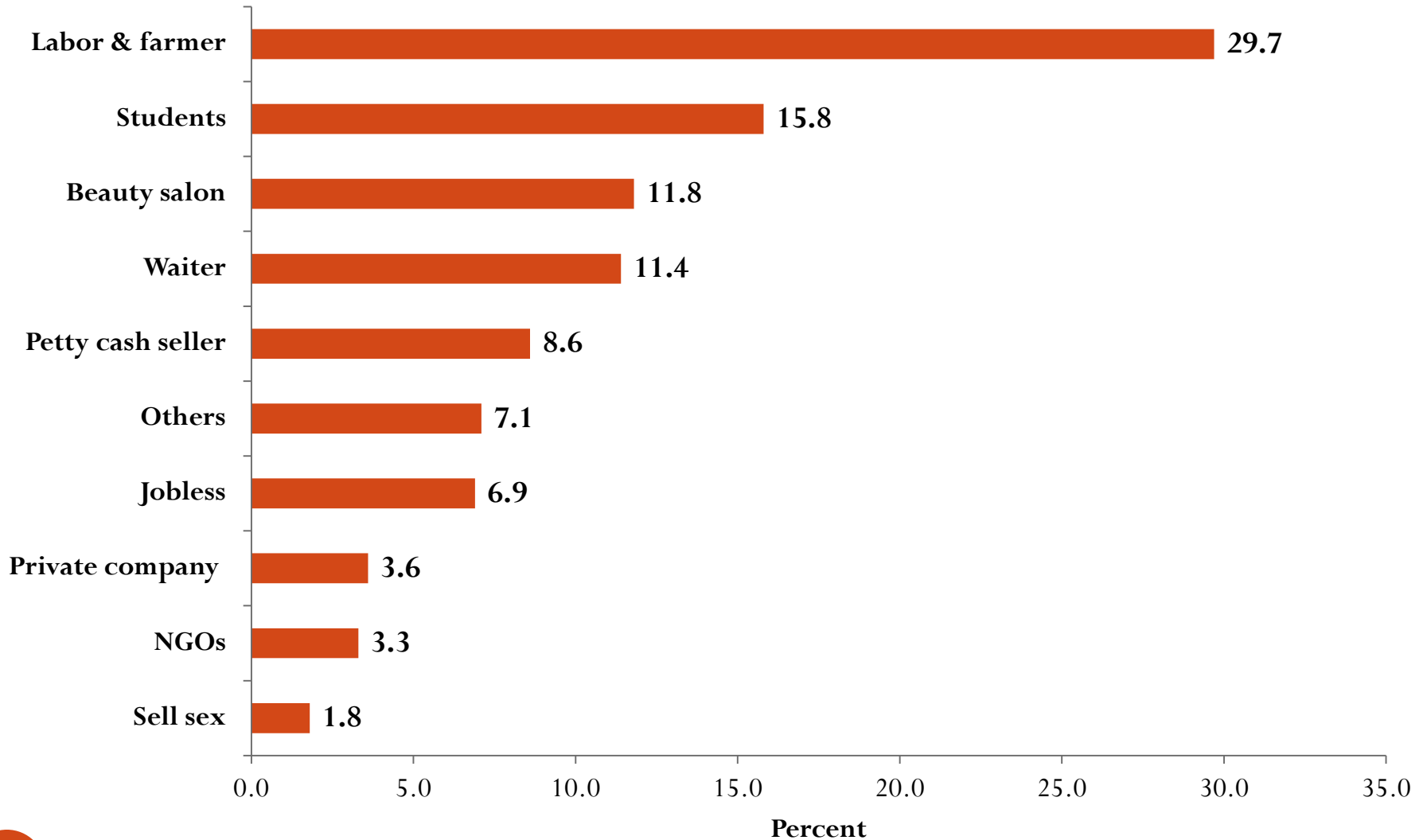# HIV prevalence* among ANC by survey year

HIV prevalence was adjusted for QC and weighted (2006, 2010 ad 2014) by provincial population

HIV prevalence among ANC by provinces, 2014

Province	Prevalence
Stung Treng	0.00
Pursat	0.00
Pray Veng	0.00
Oddar Meanchey	0.00
Kg Thom	0.00
Svay Rieng	0.11
Ratanakiri	0.11
Pailin	0.11
Kg Chnang	0.11
Bantey Meanchey	0.12
Kratie	0.23
Kg Speu	0.23
Battambang	0.23
Takeo	0.26
Kandal	0.34
Siem Reap	0.45
Kg Cham	0.45
Kampot	0.45
Phnom Penh	0.46
Phrea Vihear	0.57
Sihanouk Ville	0.68
Koh Kong	1.05

MSM characteristics

Characteristics	%	n
Mean age in year (median)	24.8 (23)	
15- 24 years old	57.2	942
25 and older	42.8	704
Reported married, N = 1646	18.6	306
Spouse of the married MSM, N = 306		
Men	13.4	41
Women	**83.3**	255
Transgender	3.3	10
Mean year of educaton (median)	8.6 (9)	
Mean age of first sex (median)	18.2 (18)	
Reported self identity		
Men	53.8	886
Women	24.6	404
Transgender	21.6	356

MSM occupation

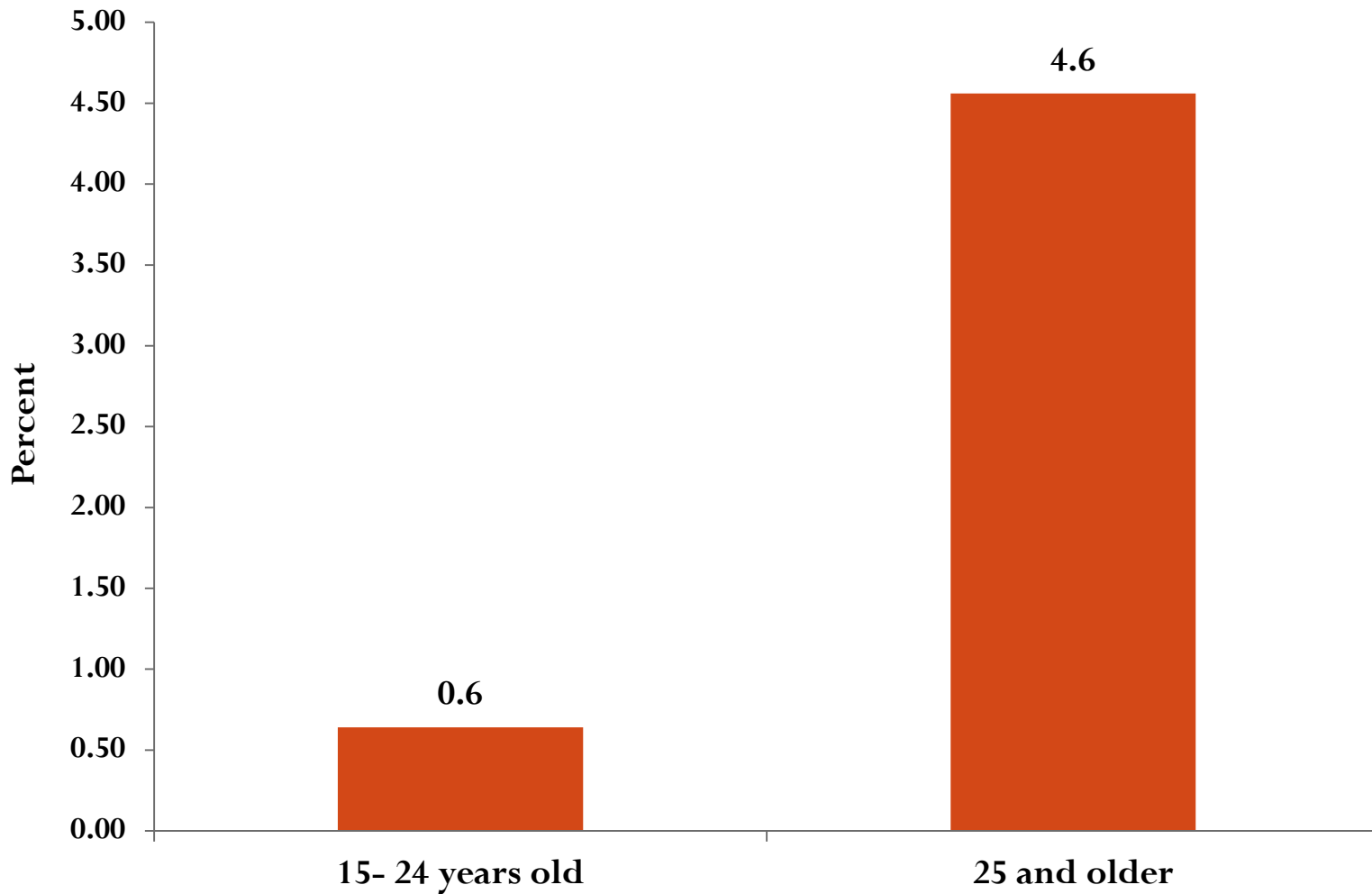| Occupation	Percent
Labor & farmer	29.7
Students	15.8
Beauty salon	11.8
Waiter	11.4
Petty cash seller	8.6
Others	7.1
Jobless	6.9
Private company	3.6
NGOs	3.3
Sell sex	1.8

Percent

**Others: moto-taxi driver, officer and others

HIV prevalence by MSM self identity

Note: Definition is different from theMSM & TG program perspective. **It was based on the self reported from the participants**, sexual based preference report. **Men** referred to the insertive sex practices where **women** referred to receptive sex practices. **Transgender** referred to the bisexual sex practices
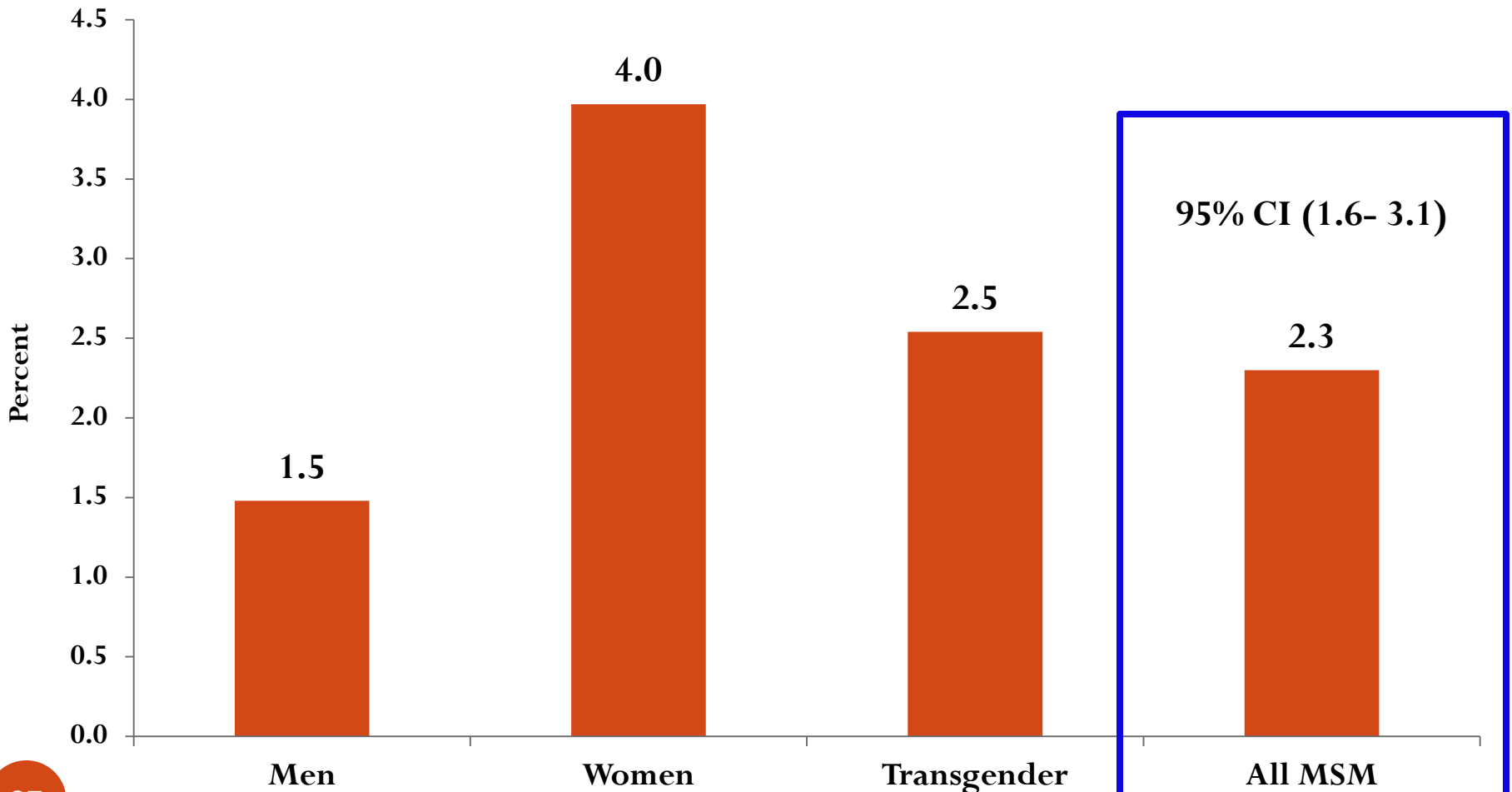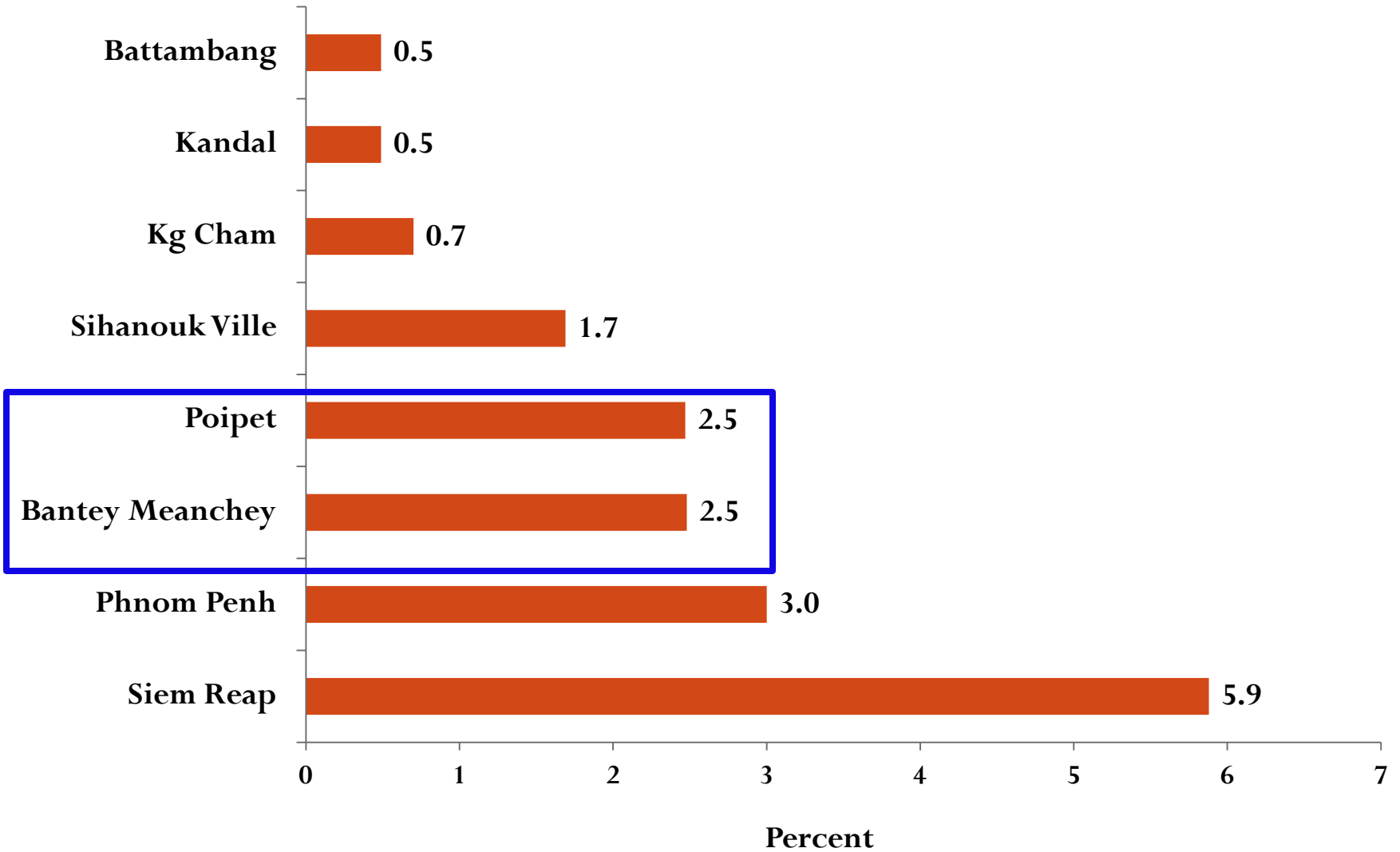
HIV prevalence by age groups
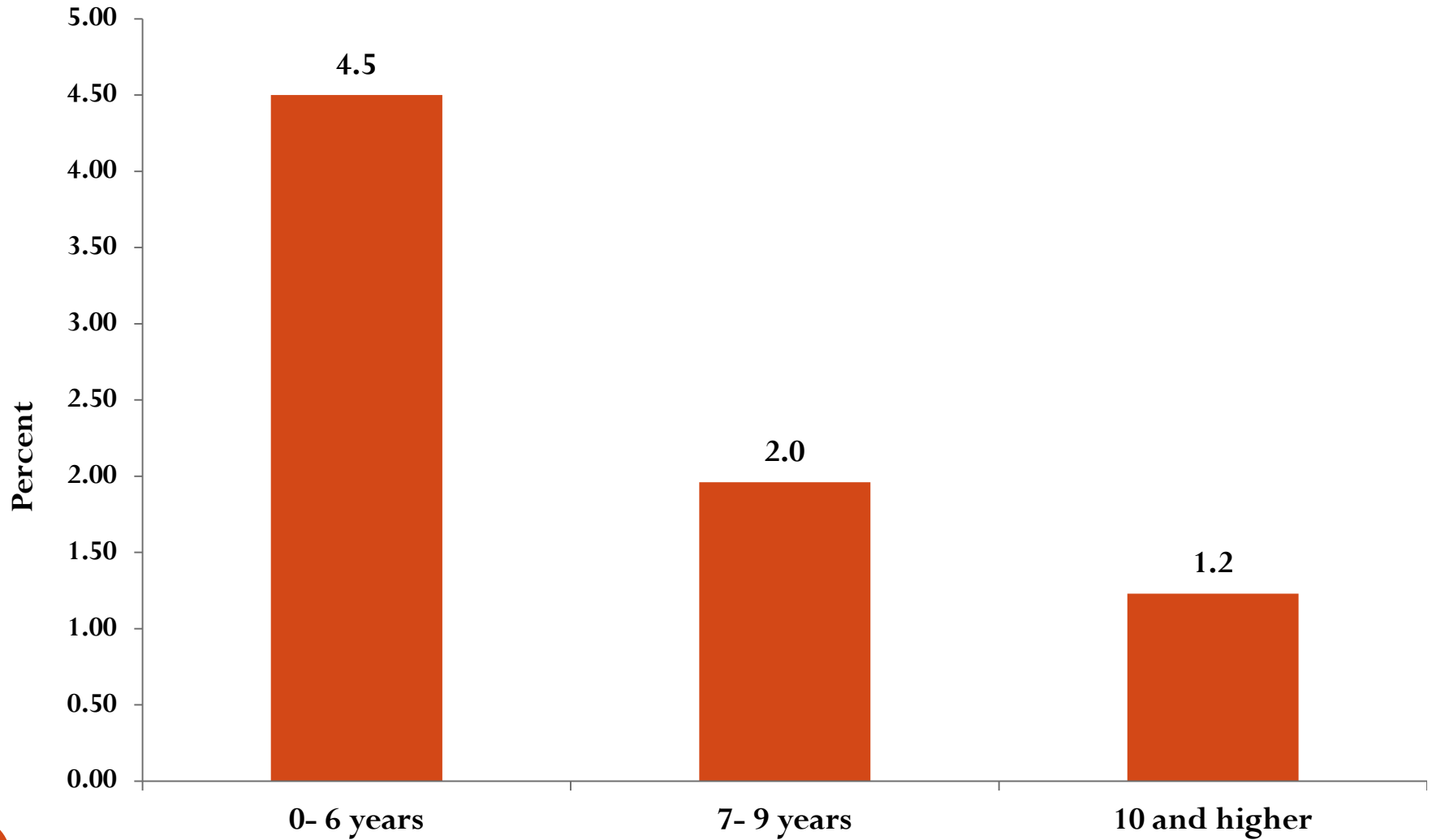
Bros Khmer 2010 & MSM 2014
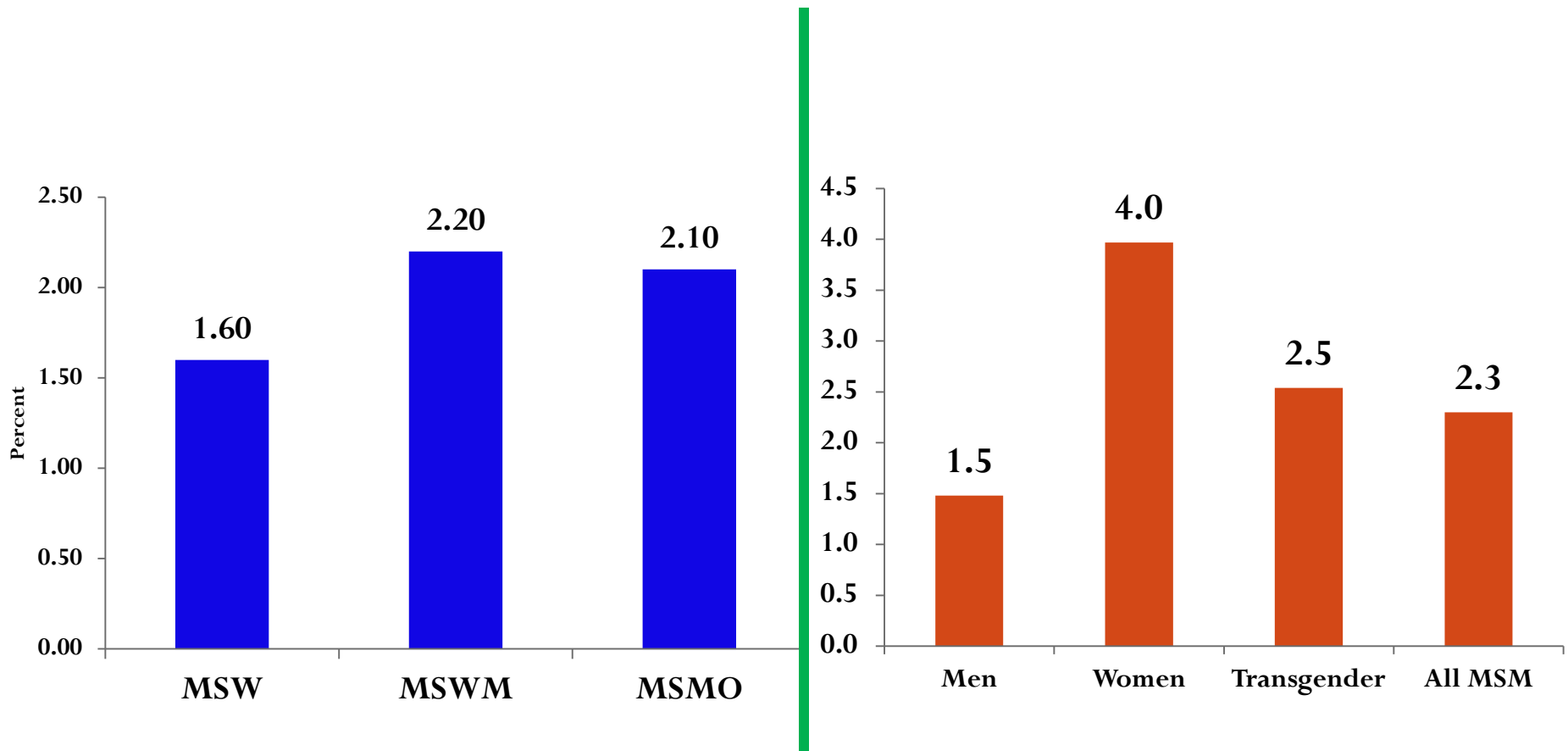
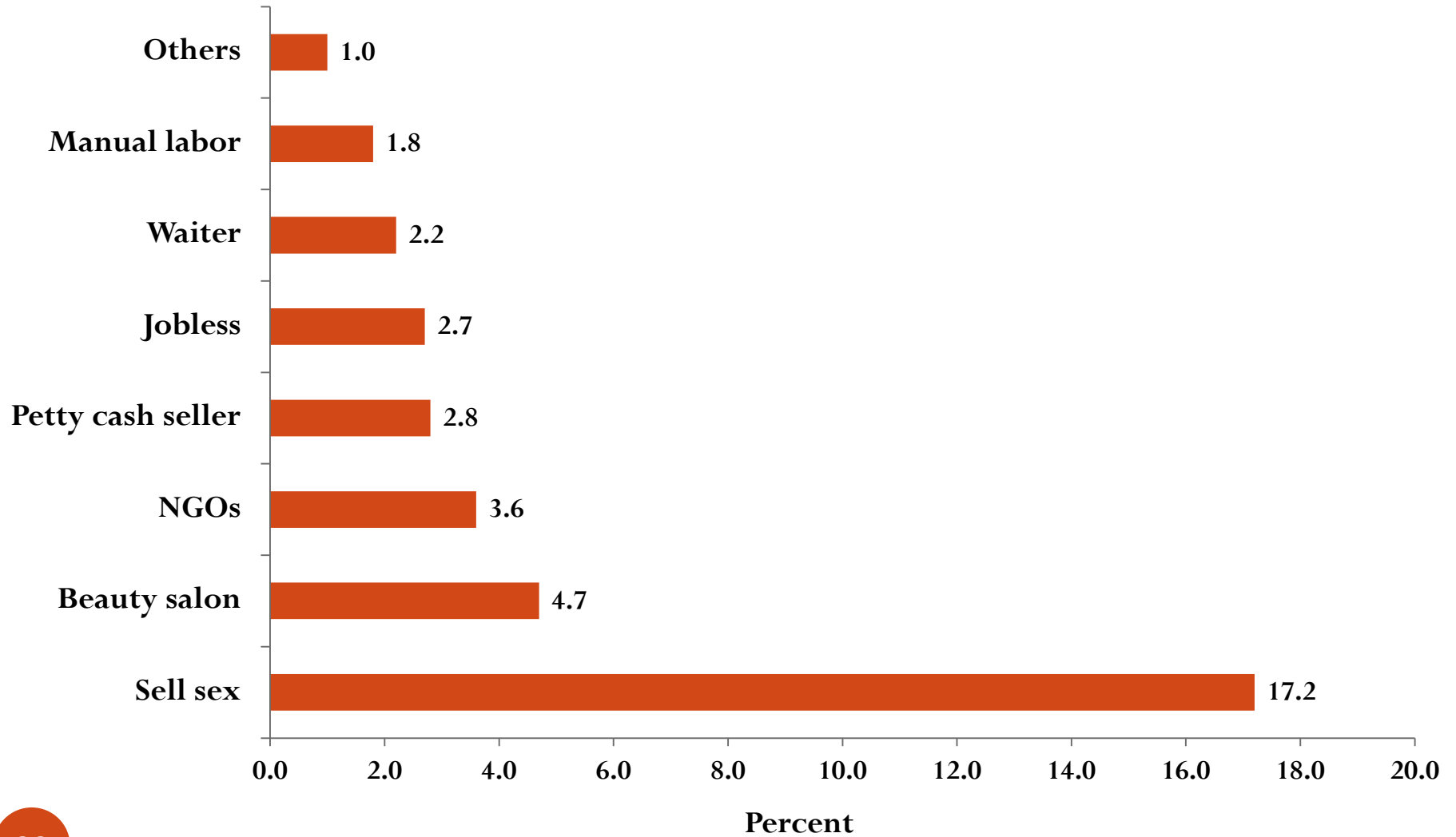*Bros Khmer 2010, PRASIT/NCHADS-USAID*

HIV prevalence by provinces

Chart (horizontal bar, Percent):
- Battambang: 0.5
- Kandal: 0.5
- Kg Cham: 0.7
- Sihanouk Ville: 1.7
- Poipet: 2.5
- Bantey Meanchey: 2.5
- Phnom Penh: 3.0
- Siem Reap: 5.9

HIV prevalence among by educational level

HIV prevalence by occupations

Percent

- Others: 1.0
- Manual labor: 1.8
- Waiter: 2.2
- Jobless: 2.7
- Petty cash seller: 2.8
- NGOs: 3.6
- Beauty salon: 4.7
- Sell sex: 17.2

Conclusions on ANC women

- HIV prevalence has declined further among pregnant women attending antenatal clinics

- HIV prevalence among ANC weighted for the difference between urban/rural was 0.28% (~0.3%)

- HIV prevalence among ANC women at PC (urban ANCs) has been consistently higher than among those who are at RD (rural ANCs)

- **HIV prevalence among PMTCT women was as low as twice of the ANC women.** Therefore, using the PMTCT data to represent the ANC women should be cautious in Cambodia context.

- Three provinces included KHK, SHV and PVH should be paid more attention in terms of program intervention given the higher contained prevalence

Conclusions on MSM

- Overall HIV prevalence among MSM was 2.3%

- However, the prevalence is different from types of MSM especially high among **self identified as women and transgender)**.

- High among MSM aged > 24 years old (4.6%); and among low educational level (4.5%)

- HIV high prevalence **may concentrate on some occupations and paid sex works,** and some provinces including SRP, BMC and PNP

- This confirm the **Bros Khmer 2010** where HIV prevalence were also high in these provinces though the design and MSM defined population were different from this survey

- Focused prevention intervention should be further focused on these provinces and targeted some MSM sub-groups (i.e. ages, education, job, site)

Acknowledgements

- National Center for HIV/AIDS, Dermatology and STDs (NCHADS)

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- KHANA

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Thank You