

# **CAMBODIAN STI SURVEY 2005:** **Key Risk Behaviors and STI** **Prevalence**

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NCHADS, FHI, ADB and CDC GAP

*September 12, 2006*

**Hotel Le Royal**

# Team members

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- **Principal investigators**

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- **Management**

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# Primary Objective

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- To determine the prevalence of *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *Treponema pallidum*, HIV, and related risk behaviors among specific sentinel groups.

# General Methodology

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Survey conducted from March-August 2005

- Three sentinel groups surveyed:
  - Brothel-based female sex workers (FSW)
  - Policemen
  - Men who have sex with men (MSM)
- Behavioral data collected through face-to-face interviews

# Specimen transportation and storage

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- Whole blood centrifuged and aliquoted at each survey site
- Urine, swabs, and blood were stored at 4° C in the field and transported to Phnom Penh within 48 hours
- All specimens were stored at 4-6° C at the National STD Clinic laboratory until being tested
- Urine and swabs were tested within 4 days of collection

# Sampling

<b>FSW</b>	<p>Cluster sampling of brothels in 3 provinces: Phnom Penh, Siem Reap, Banteay Meanchey; and</p> <p>All brothels selected in 5 provinces: Kg Cham, Prey Veng, Battambang, Koh Kong, Sihanouk Ville</p> <p>All FSW in selected brothels were sampled (take-all approach)</p>
<b>Police</b>	<p>Cluster sampling of police posts and stations in all 8 provinces.</p> <p>Random sampling of 8 policemen in each cluster selected.</p>
<b>MSM</b>	<p>Respondent driven sampling in 3 provinces: Phnom Penh, Battambang, and Siem Reap</p>

# Sample sizes by province and survey group

Province	FSW	Police	MSM
Phnom Penh	190	157	299
Kampong Cham	116	67	
Prey Veng	100	74	
Battambang	179	57	124
Banteay Meanchey	88	61	
Siem Reap	101	73	124
Koh Kong	82	54	
Sihanouk Ville	225	80	
	<b>1081</b>	<b>623</b>	<b>547</b>

# Analysis methodology

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- Weight for differences in selection probability were calculated and applied
- Analysis of risk behaviors related to STI was performed for “any STI” which included one or more of the following:
  - Genital gonorrhoea, genital chlamydia, or syphilis (FSW and police)
  - Genital or rectal gonorrhoea, genital or rectal chlamydia, or syphilis (MSM)



# Laboratory Methodology

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## Specimen collection:

- Nurse collected venous blood from all participants
- FSW self-collected vaginal swabs
- Police provided urine sample
- MSM self-collected rectal swabs and provided urine sample

## Laboratory testing:

- Swabs and urine samples tested for *Neisseria gonorrhoeae* (NG) and *Chlamydia trachomatis* (CT) by BDProbeTec™ strand displacement amplification assay
- Venous blood tested for syphilis (RPR + TPPA)

## Quality control:

- All NG- or CT-positive and 10% of negative specimens retested by real-time PCR by US CDC (Atlanta), considered as the gold standard for comparison

# Definitions

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- **Sweetheart:** “romantic” partner who does not live with respondent. A sweetheart relationship does not necessarily involve sexual intercourse (non marital and non commercial).
- **Casual partner:** sexual partner who is neither living with, married to, or sweetheart of the respondent.

# Results

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# Demographic characteristics of FSW

<b>Age</b>	15-19	10.3 %
	20-24	45.1 %
	25-29	26.1 %
	30+	18.6 %
	Mean	25 years
	<b>Marital status</b>	Married living together
Married not living together		2.2 %
Divorced		47.1%
Widows		4.1%
Never married		43.3%
<b>Schooling</b>		No formal education
	Primary school	47.2%
	Secondary school	9.2%
	Mean	2.4 years

# FSW mobility

## Number months living in current city

< 6 month	25.4 %
6 to 11 months	12.9 %
12 months or more	61.7 %
Mean	9.7 Months

## Number of provincial capitals lived in past year

1	23.8 %
2	59.1 %
3 to 7	17.1 %
Mean	2 Cities

## Number of communes lived in the past year

1	13.8 %
2	28.2 %
3 to 9	38.2 %
10 to 40	19.9 %
Median	2 Khum

## Number of months spent away from family in the past year

0	7.3 %
1 to 11	35.1 %
12	57.6 %
Median	12 Months

# Fertility and abortion among FSW

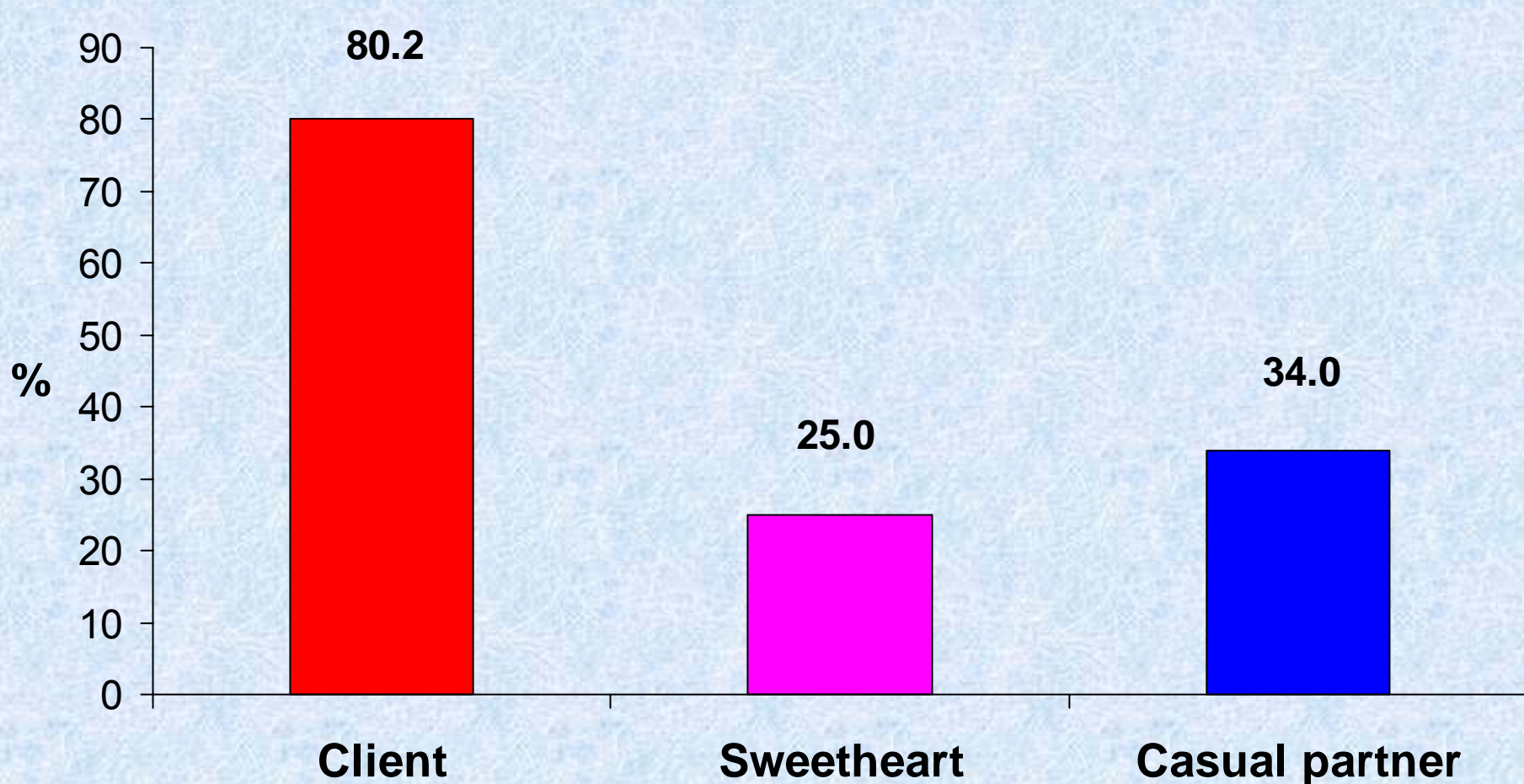
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- 70% of FSW reported at least one pregnancy (mean number = 1.9 pregnancies)
- 40% of FSW had at least one child
- 54% of FSW reported at least one abortion (15% reported 3 or more abortions)
- Among FSW who reported having an abortion:
  - 52% had an abortion within the last 6 months
  - Mean time since last abortion was 11.3 months, median was 5 months
  - 93% reported using a medical facility for their last abortion

# FSW: Number and type of sexual partners

<b>Number of clients in last working day</b>		
	0	1.3 %
	1 to 3	57.8 %
	4 to 10	39.3 %
	More than 10	1.6 %
	Mean (median)	3.5(2) clients
<b>Number of sweethearts in the past year</b>		
	No sweetheart	42.1 %
	One	36.5 %
	More than 1	21.3 %
<b>Casual partner in past month</b>		
	yes	58.1 %
	No	41.9 %
<b>Sex with MSM in past 3 months</b>		
	yes	17.6 %
	No	76.6 %
	Don't Know	5.7 %

# FSW: always used condom\* by partner type



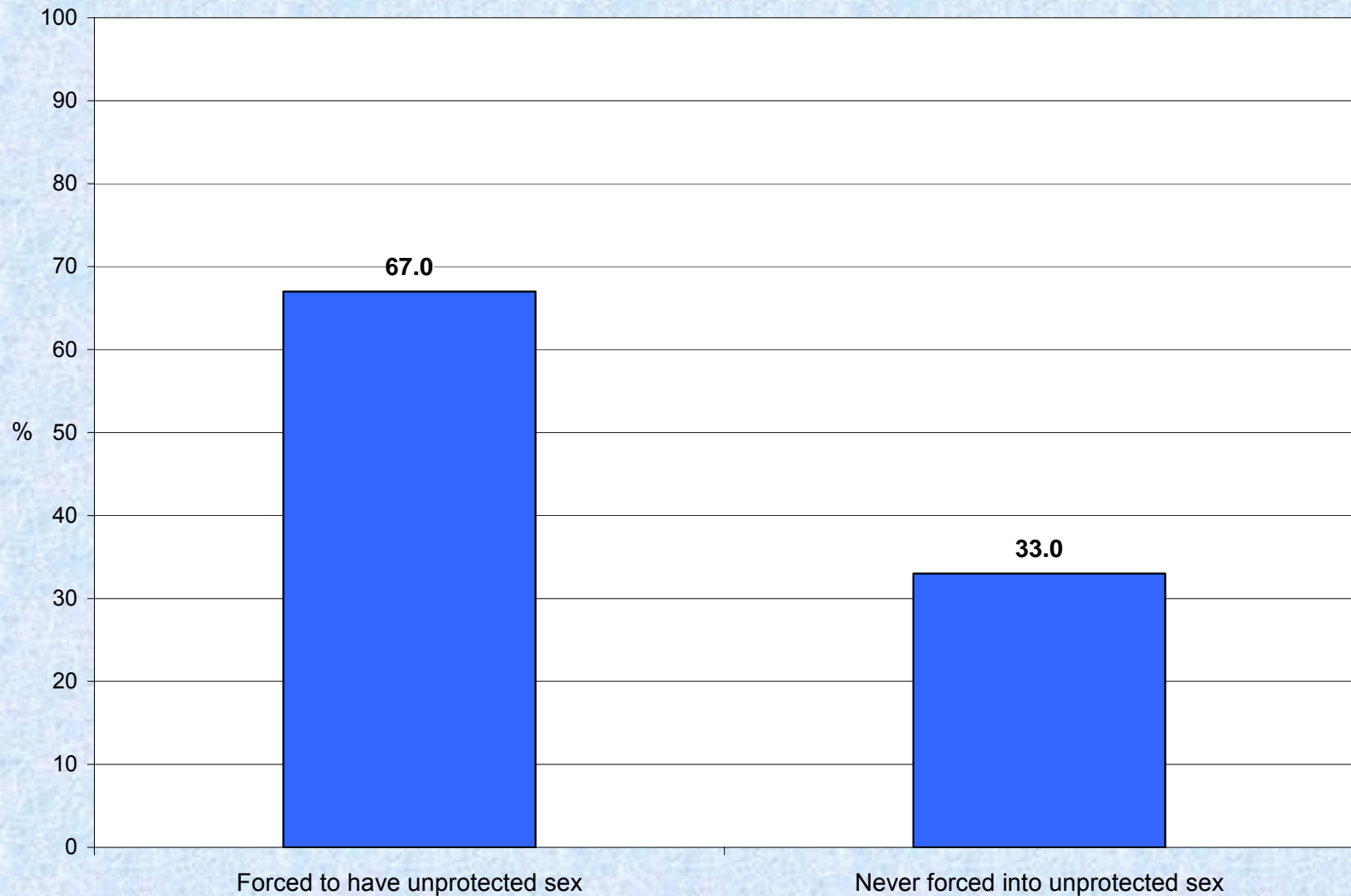
\*Condom use with clients specified in the past week; with sweethearts and casual partners in the past month

Source: NCHADS, Cambodia STI Survey 2005



# Percent of FSW reporting having been forced or convinced not to use condoms, in the past week

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**Source: NCHADS, Cambodia STI Survey 2005**

# Uptake of HIV testing services among FSW

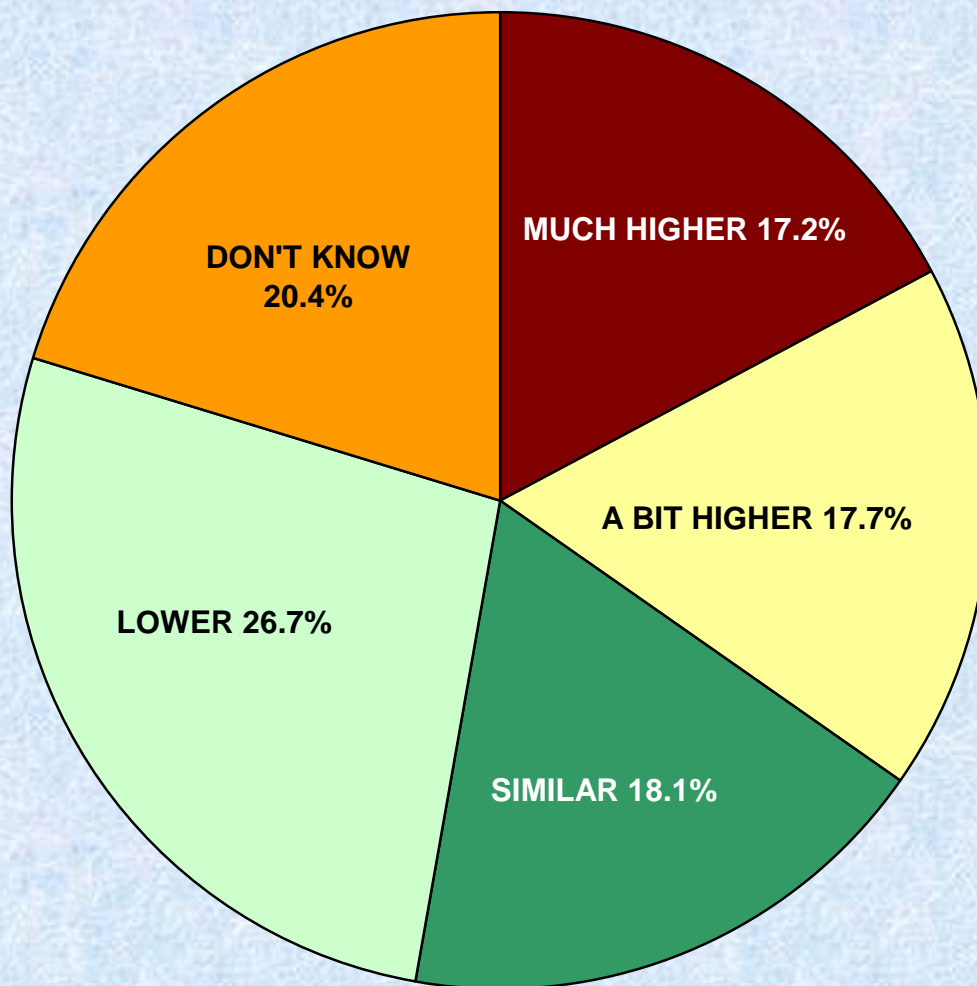
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<b>Ever tested for HIV, n (%)</b>	<b>680 (65.1)</b>
<b>When last received HIV test result,* %</b>	
Never received HIV test results	31.0
0 to 6 months ago	41.8
7 to 12 months ago	14.0
13 months to 2 years ago	5.7
More than 2 years ago	7.5

\*Of those ever tested for HIV

# FSW: self-estimated risk of STI compared with other Cambodian women

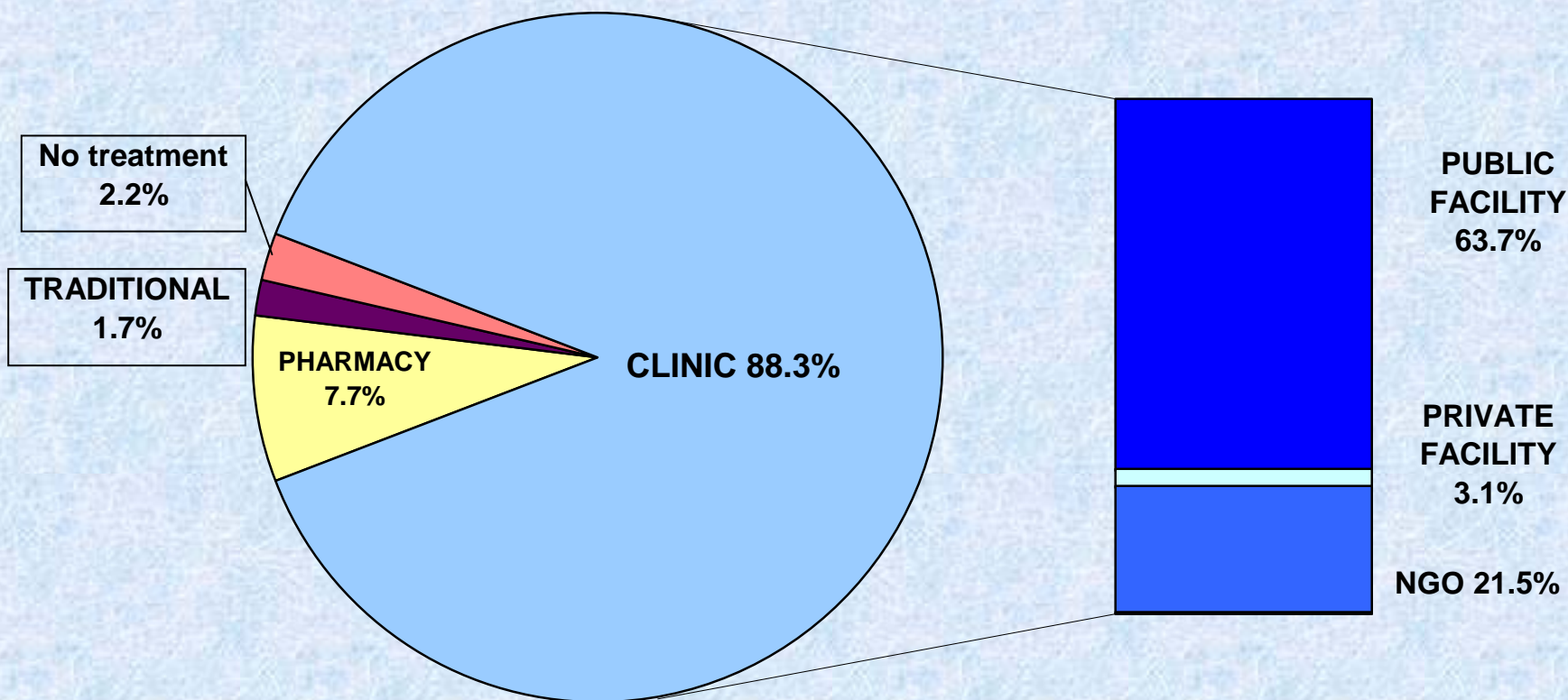
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Source: NCHADS, Cambodia STI Survey 2005

# Care seeking behaviors of FSW at last episode of STI

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Source: NCHADS, Cambodia STI Survey 2005

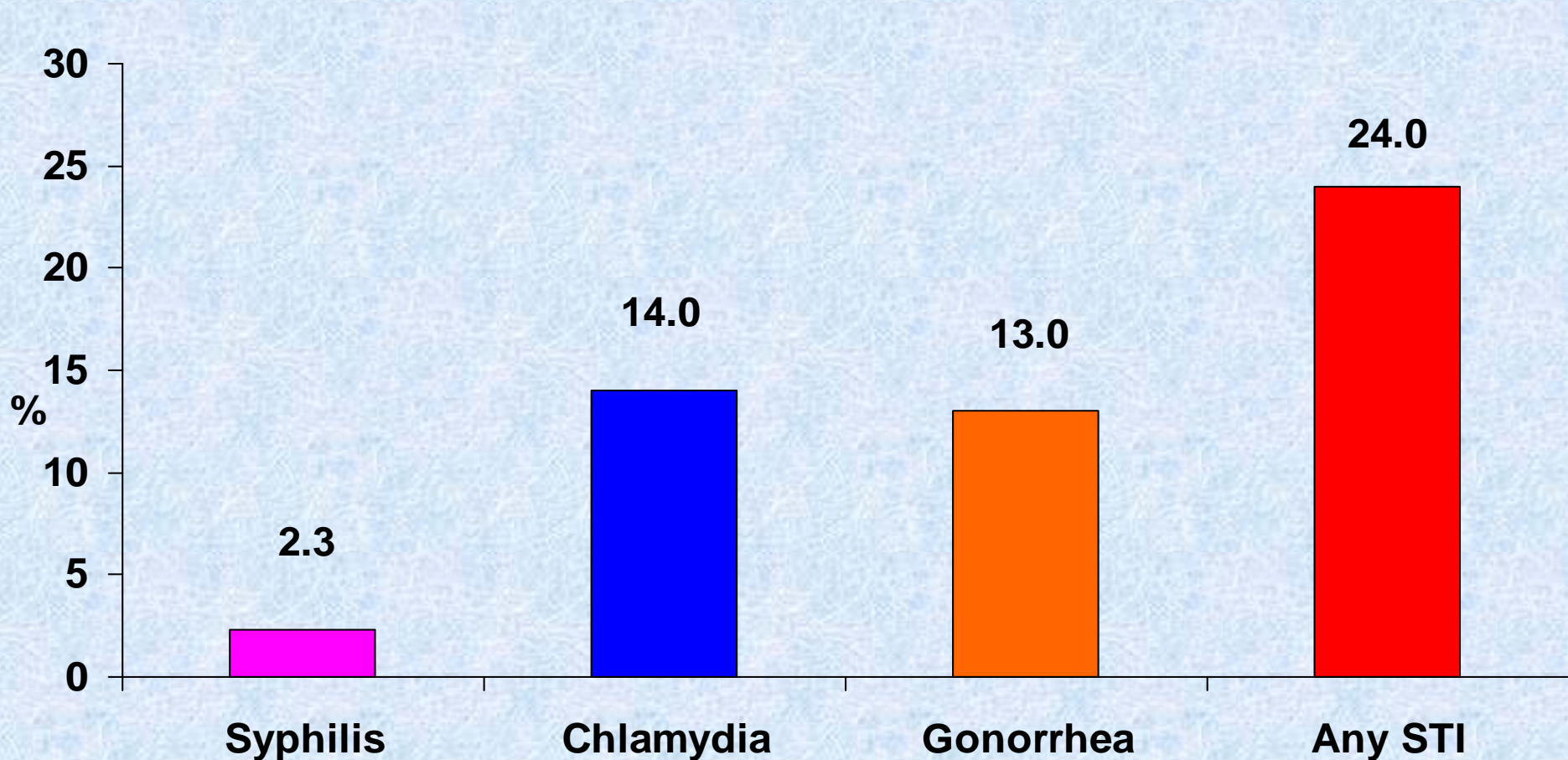
## **FSW: self-reported STI in past year, and cure after treatment and duration refrained from sex at last STI episode**

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		%
<b>STI past year</b>	Yes	47.1
	No	52.9
<b>Cured after treatment</b>	Yes	85.2
	No	24.8
<b>How long stopped sex at last episode of STI</b>	Did not stop	46.5
	1 to 3 days	15.7
	4 to 10 days	20.8
	Until the end of treatment	4.3
	Until cured	12.9

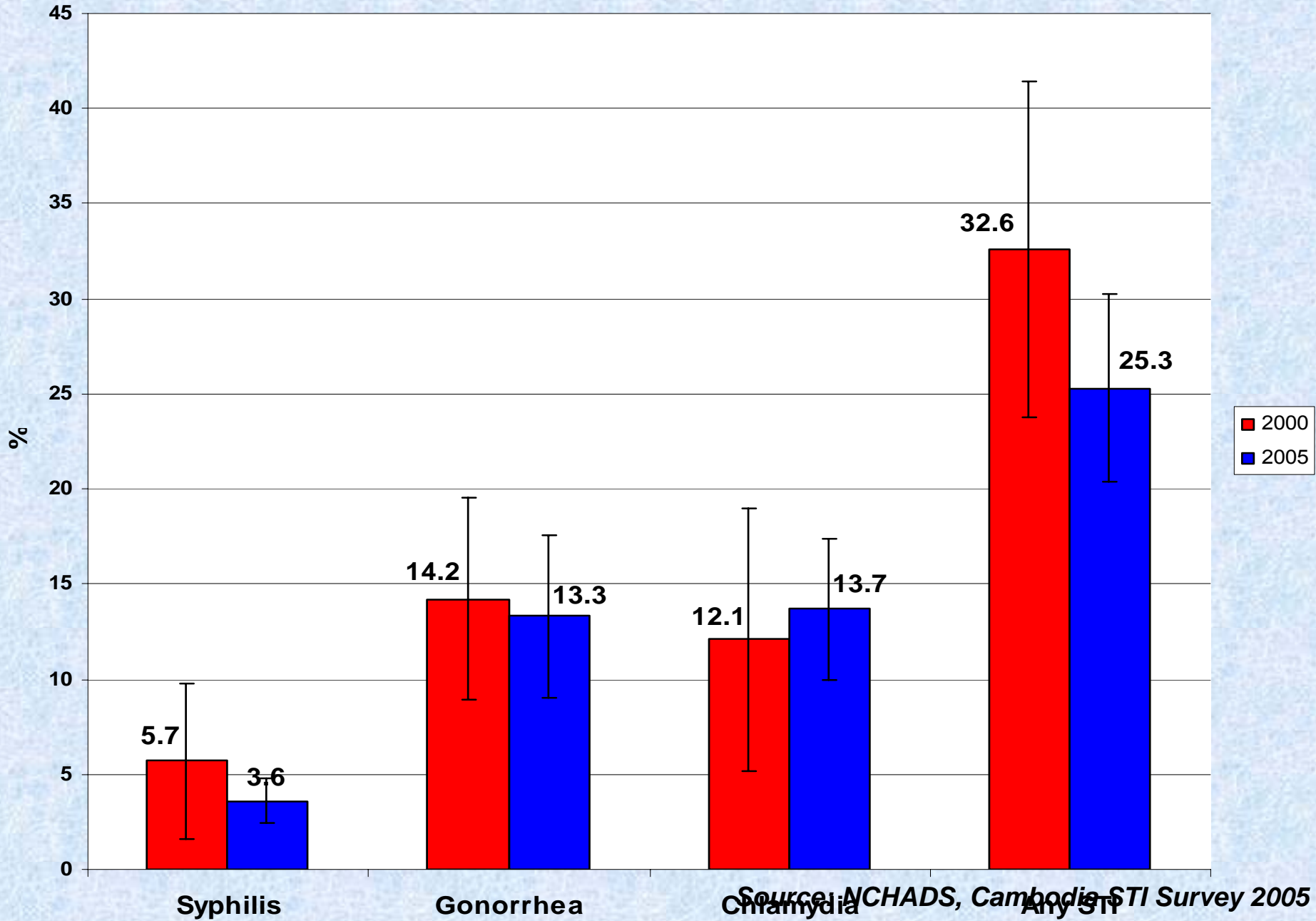
*Source: NCHADS, Cambodia STI Survey 2005*

# STI prevalence among FSW

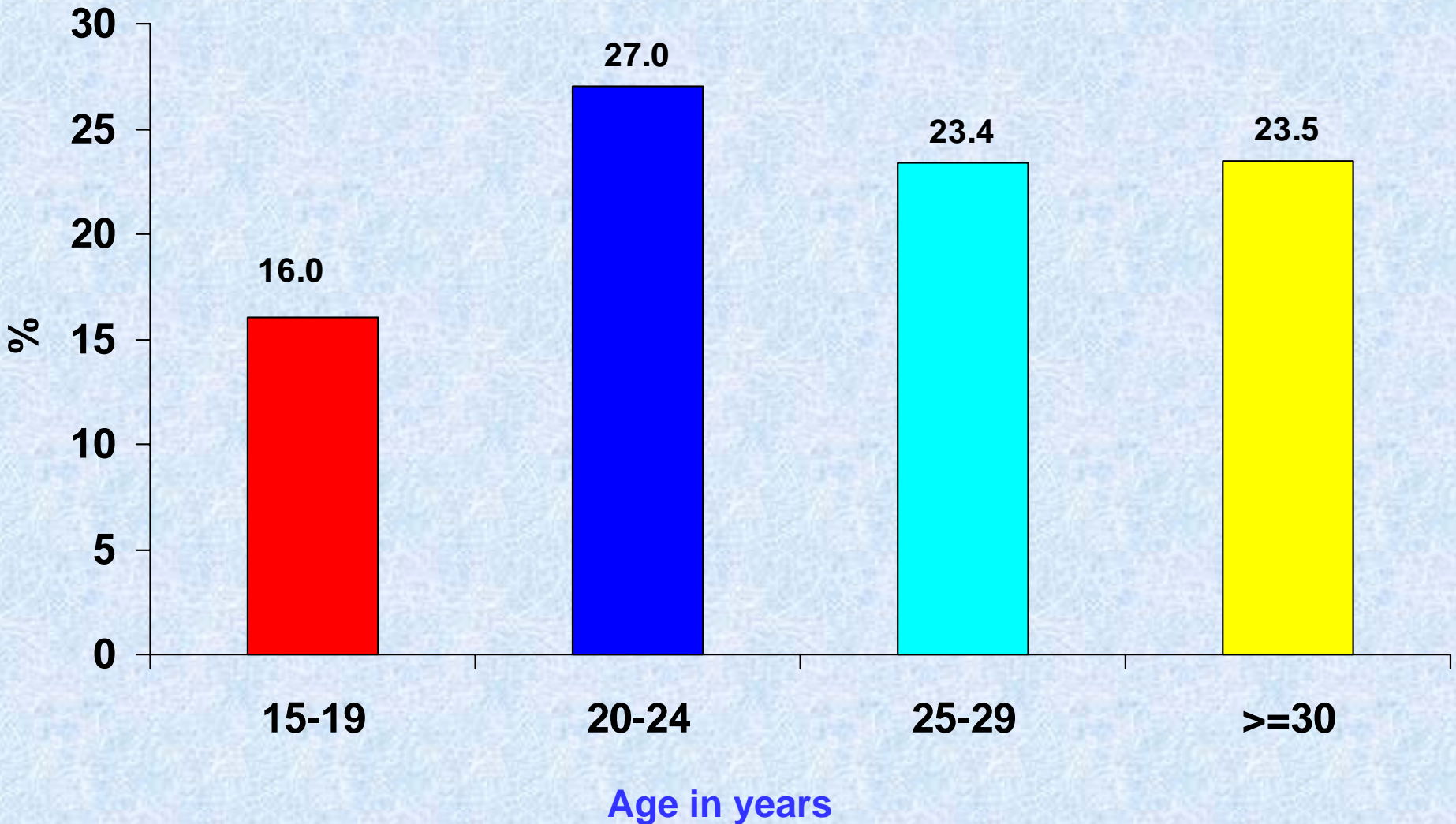


Source: NCHADS, Cambodia STI Survey 2005

# Comparison of STI prevalence among FSW by survey year



# FSW: STI prevalence by age group

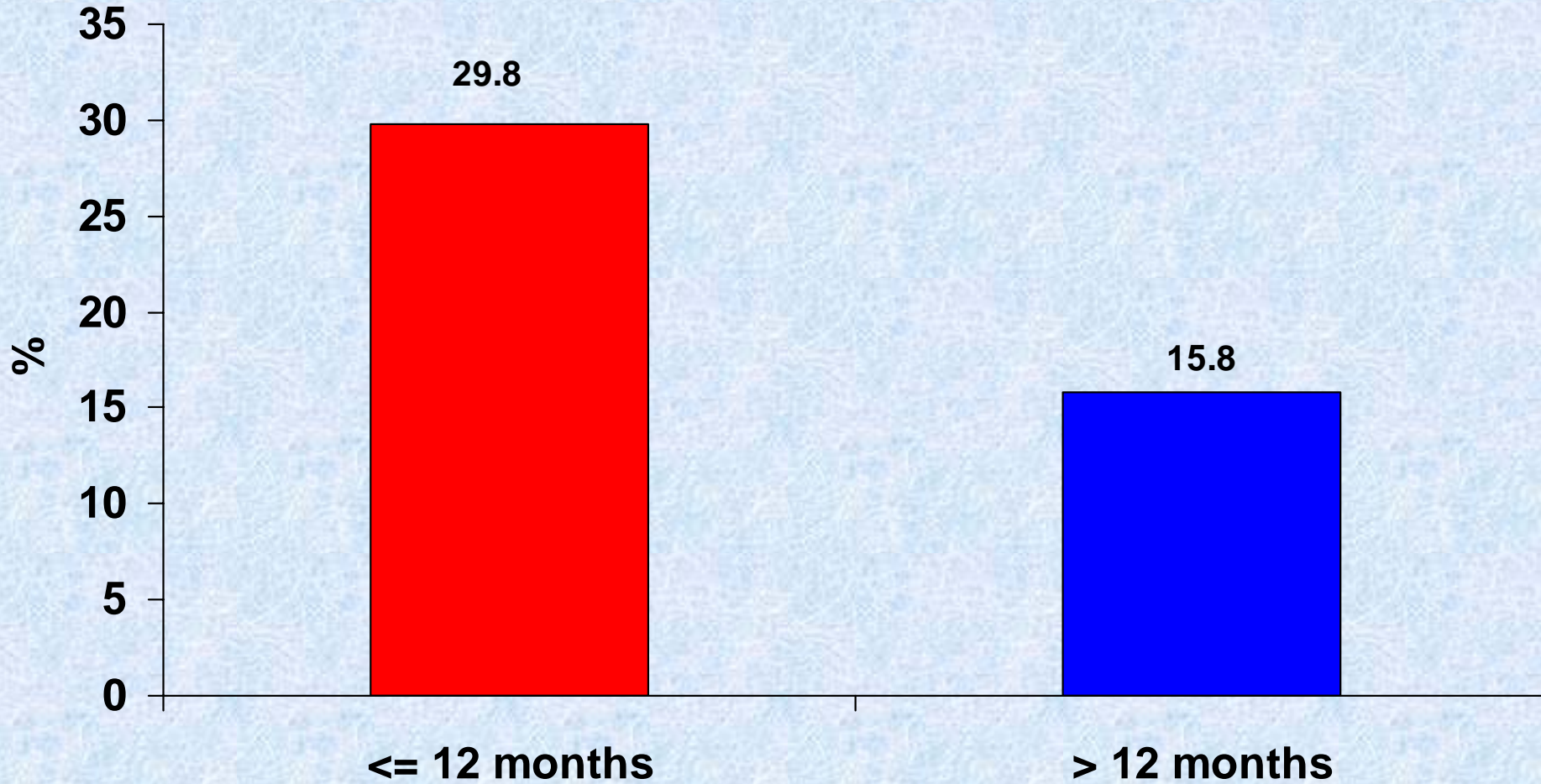


Source: NCHADS, Cambodia STI Survey 2005



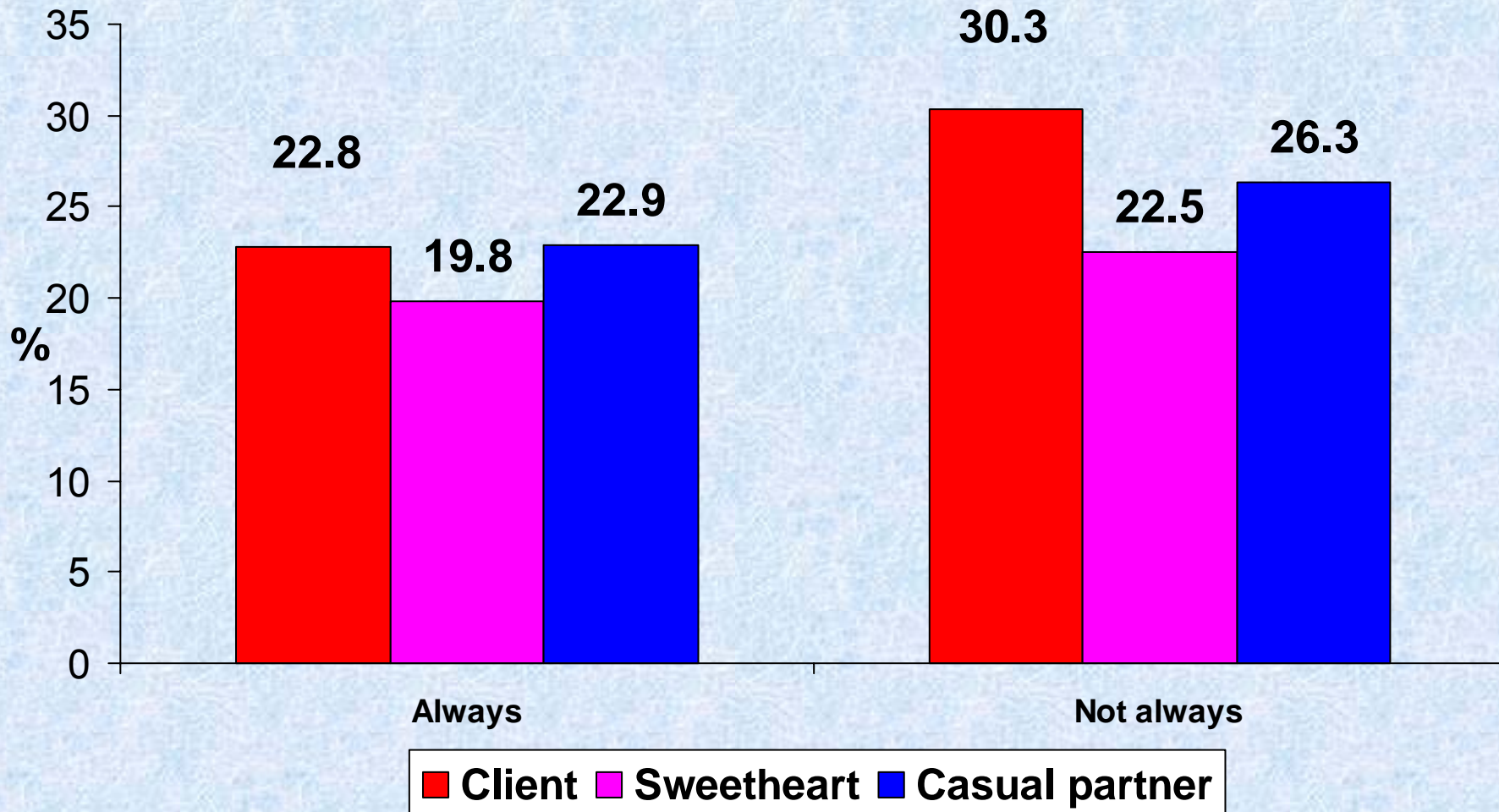
# FSW: STI prevalence by duration of selling sex

*Significantly higher prevalence of STI among FSW working  $\leq 12$  months ( $p < .001$ )*



Source: NCHADS, Cambodia STI Survey 2005

# STI prevalence among FSW by condom use\* and partner type



\*Condom use with clients specified in the past week; with sweethearts and casual partners in the past month.

Source: NCHADS, Cambodia STI Survey 2005

# Summary and Recommendations

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# Risk behaviors among FSW

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- Prevalence of consistent condom use with clients was high (80%), but remained low with sweethearts (25%) and casual sex partners (34%)
- Among FSW who reported ever having an STI:
  - Most (88%) sought care from medical facilities—especially public clinics (64%)
  - Many (47%) continued to have sex during their last STI episode
- Abortion was common among FSW (54% reported having at least one abortion)

# STIs among FSW

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- Prevalence of chlamydia and gonorrhoea was similar.
- No significant decline in STI prevalence was observed since the 2000 survey.
- There was no significant difference in STI prevalence by age group.
- FSW who had been selling sex for 12 months or less were significantly more likely to carry an STI than those who had been selling sex for more than a year.

# FSW: Recommendations

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- 100% condom use with clients should remain the top priority of STI prevention programs
- The 100% condom use program should maintain high coverage of public STI clinic services for brothel-based FSW
- Reproductive health services and safe abortion should be emphasized or integrated with STI services, outreach, and peer education programs.
- Complete STI treatment should be ensured.

# FSW: Recommendations (2)

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- Interventions should focus on increasing condom negotiation skills with all partners, including clients, sweethearts, and casual partners. Such interventions may be especially needed for FSW who are new to the commercial sex business.
- Because STI prevalence among FSW appears relatively stable, current intervention programs such as 100% condom program, outreach and peer education program, STI case management (including the diagnosis and treatment algorithm, and microbial resistance) should be evaluated to ensure their effectiveness.

# Demographic characteristics of police

<b>Marital status</b>	
Married and live together	88.6 %
Married but live separately	3.2 %
Divorced / widowers	2.4 %
Never Married	5.8 %
<b>Schooling</b>	
No formal education	0.3 %
Primary school	11.3 %
Secondary school	83.7 %
University level	4.7 %
<b>Number of communes lived in past year</b>	
Never lived in other communes	85.0 %
Lived in at least in other commune	15.0 %
<b>Number of months living away from family in past year</b>	
Never lived away from family	69.6 %
1 to 3 months	23.4 %
4 to 12 months	7.0 %

Source: NCHADS, Cambodia STI Survey 2005



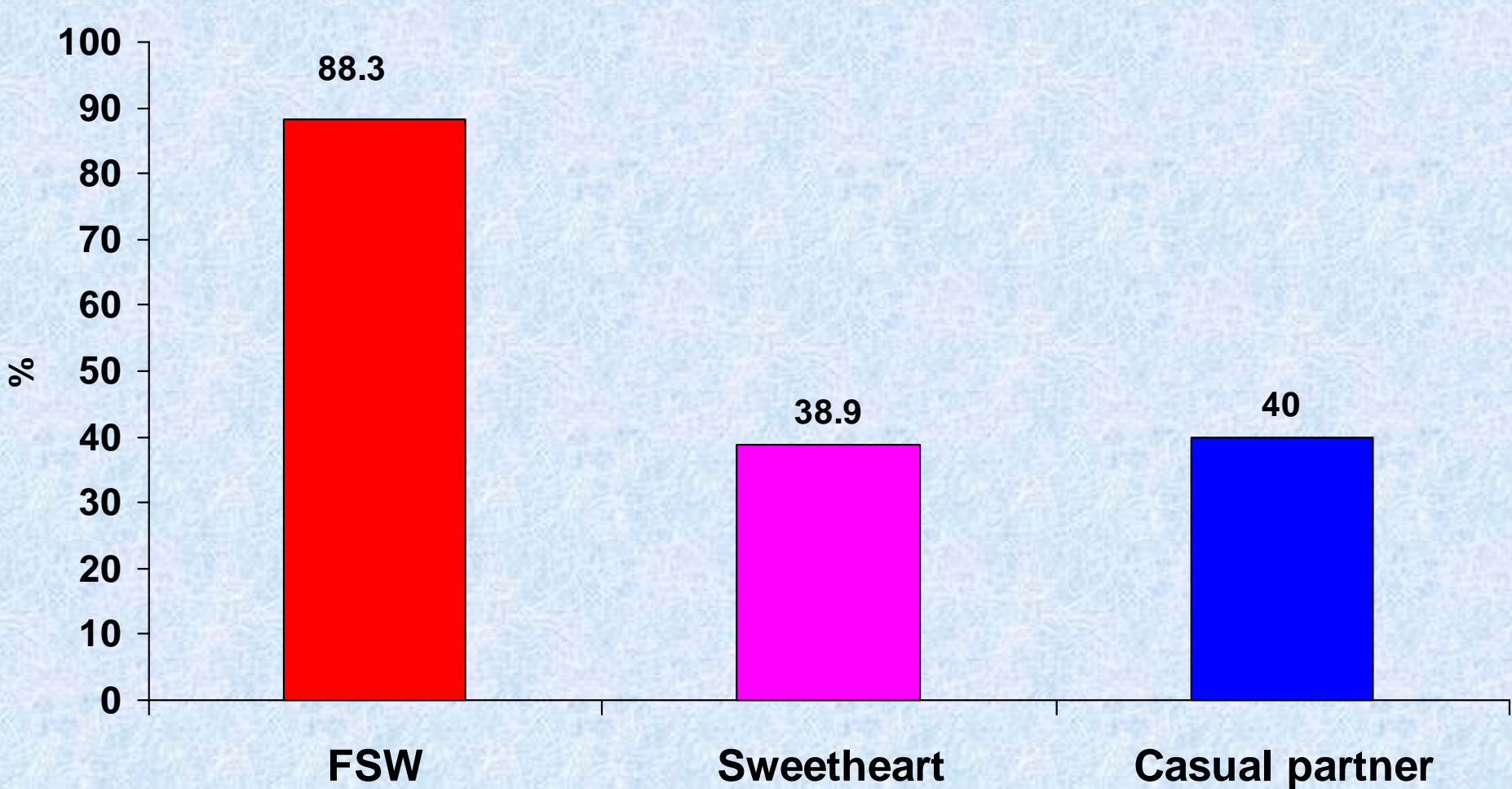
# Police by type of female sex partners in the past 3 months



Type of sexual partners

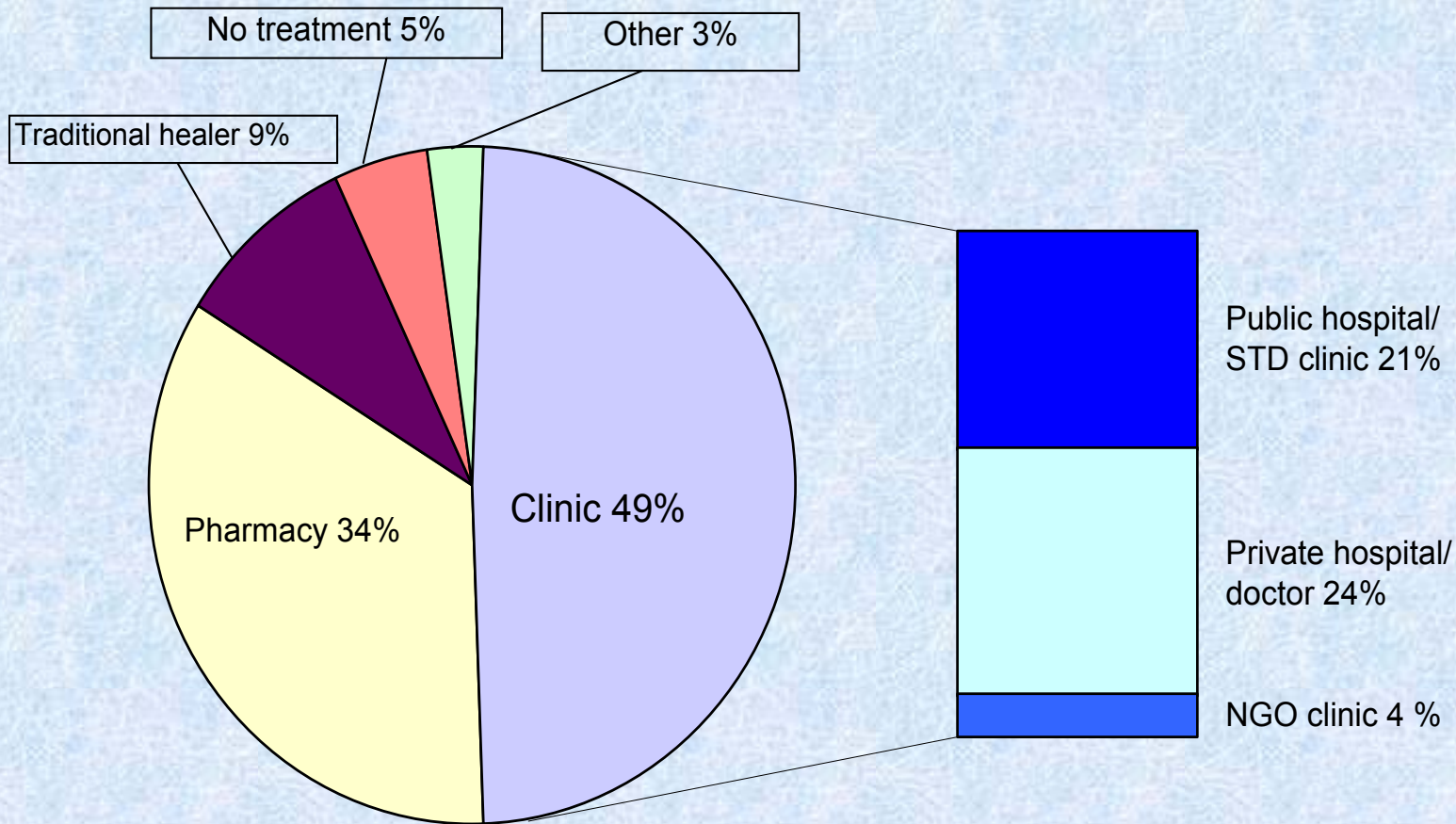
Source: NCHADS, Cambodia STI Survey 2005

# Police reported always using condoms in the past 3 months by type of sex partners



Source: NCHADS, Cambodia STI Survey 2005

## Care seeking behaviors of police at last episode of STI



**\* Only 4.7% reported episode of STI in the past year**

**Source: NCHADS, Cambodia STI Survey 2005**

# Uptake of HIV testing services among police

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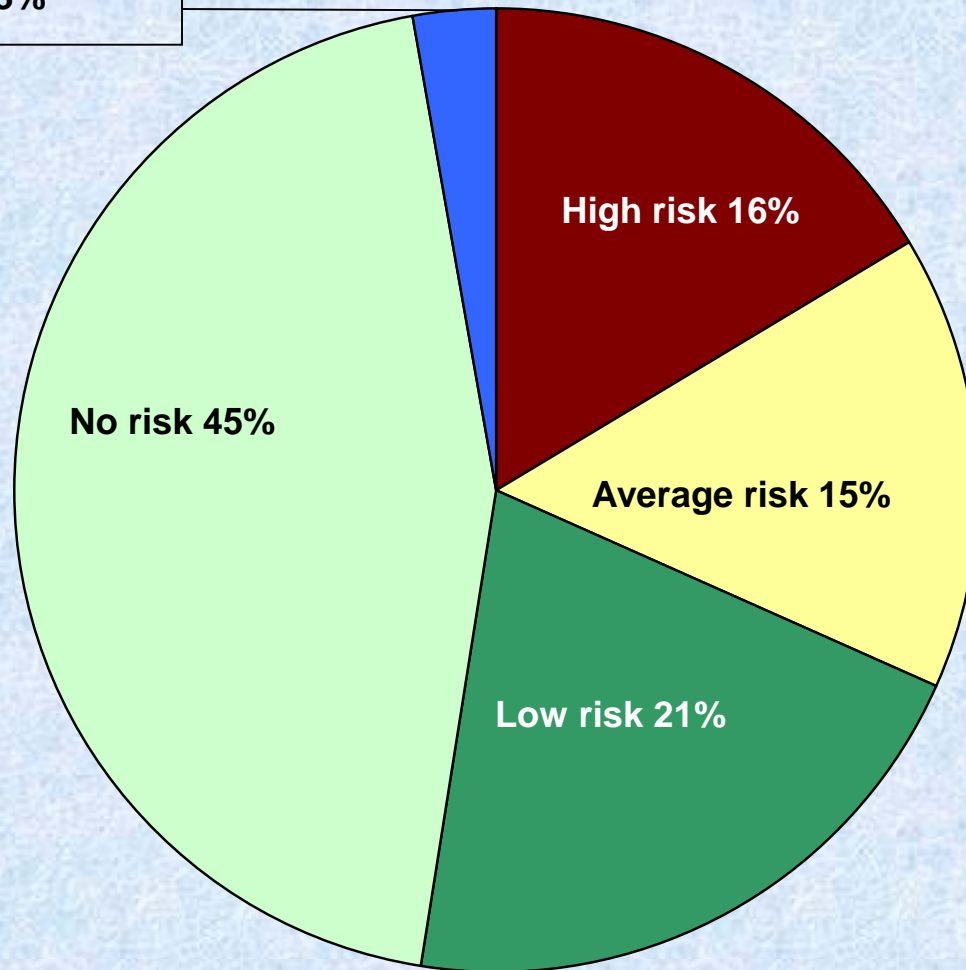
<b>Ever tested for HIV, n (%)</b>	<b>411 (66.1)</b>
<b>When last received HIV test result,* %</b>	
Never received HIV test results	<b>43.9</b>
0 to 6 months ago	<b>7.3</b>
7 to 12 months ago	<b>9.3</b>
13 months to 2 years ago	<b>21.5</b>
More than 2 years ago	<b>18.1</b>

\*Of those ever tested for HIV

# Self-estimated risk of STI among police

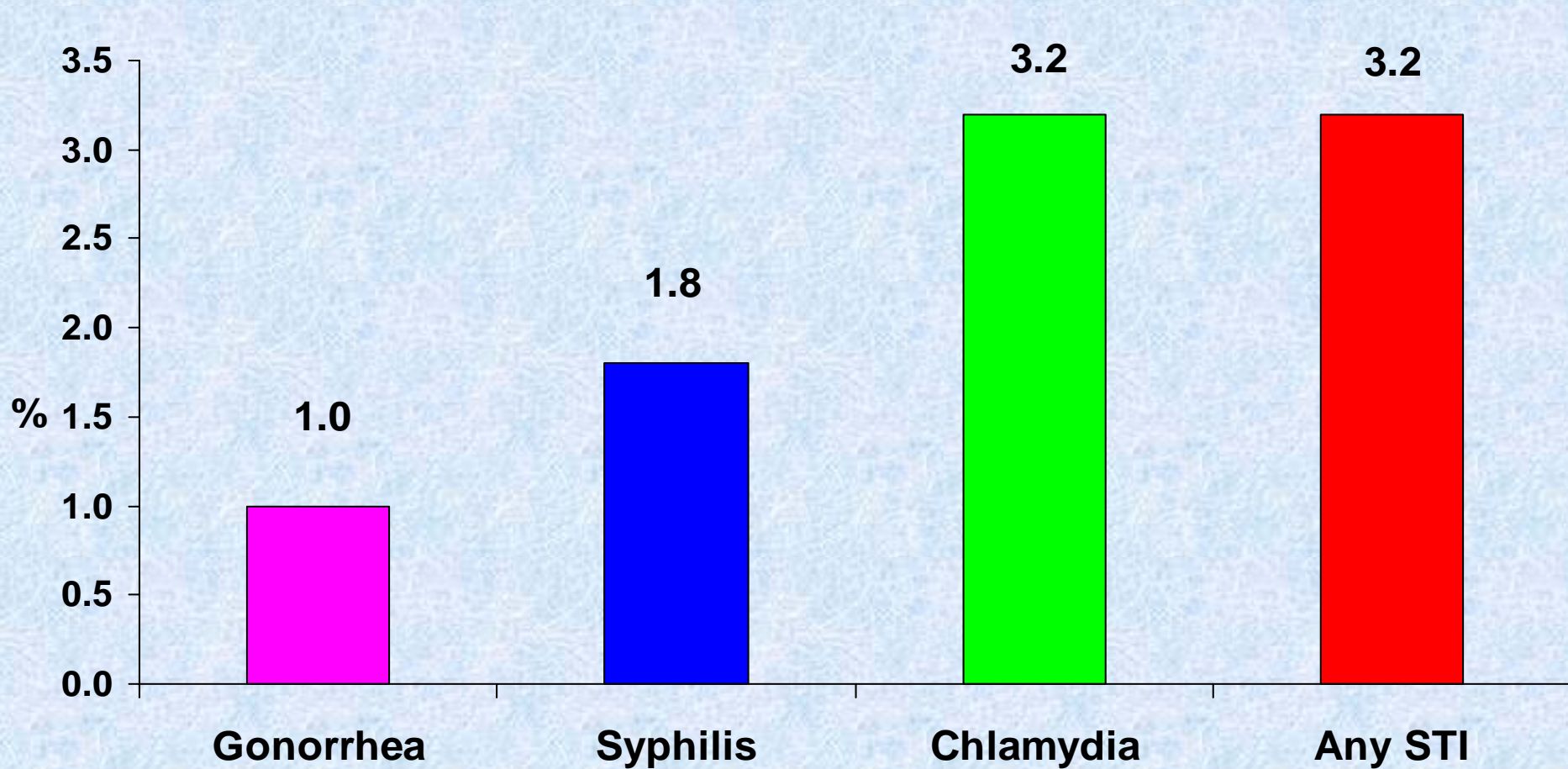
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Don't know 3%



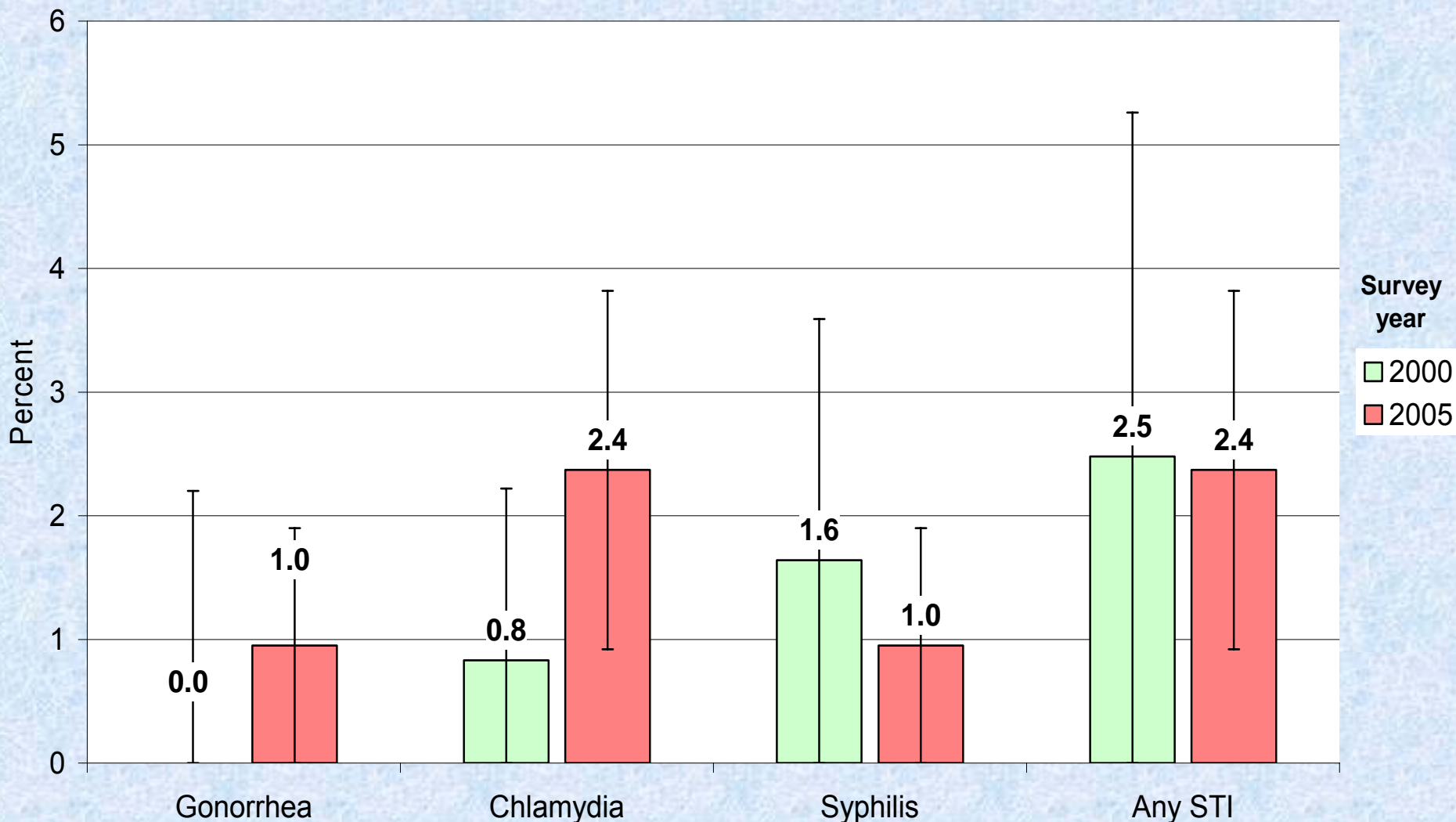
Source: NCHADS, Cambodia STI Survey 2005

# STI prevalence among police



Source: NCHADS, Cambodia STI Survey 2005

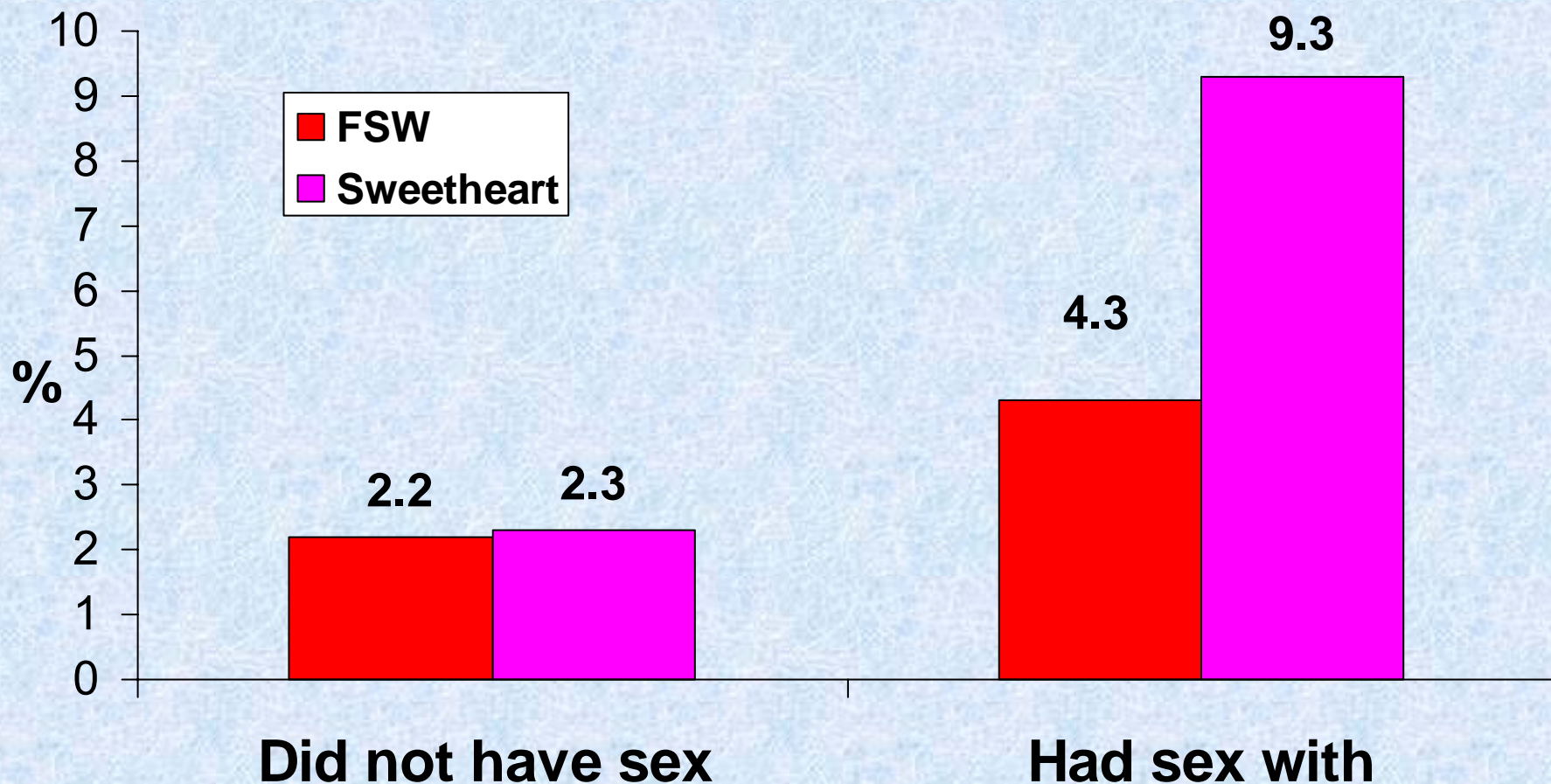
## Comparison of STI prevalence among police by survey year



For purposes of comparison, provinces include: Battambang, Kampong Cham, Sihanouk Ville, Banteay Meanchey and Pnom Penh.

Source: NCHADS, Cambodia STI Survey 2005

# STI prevalence among police, by sex with FSW and sweetheart\*

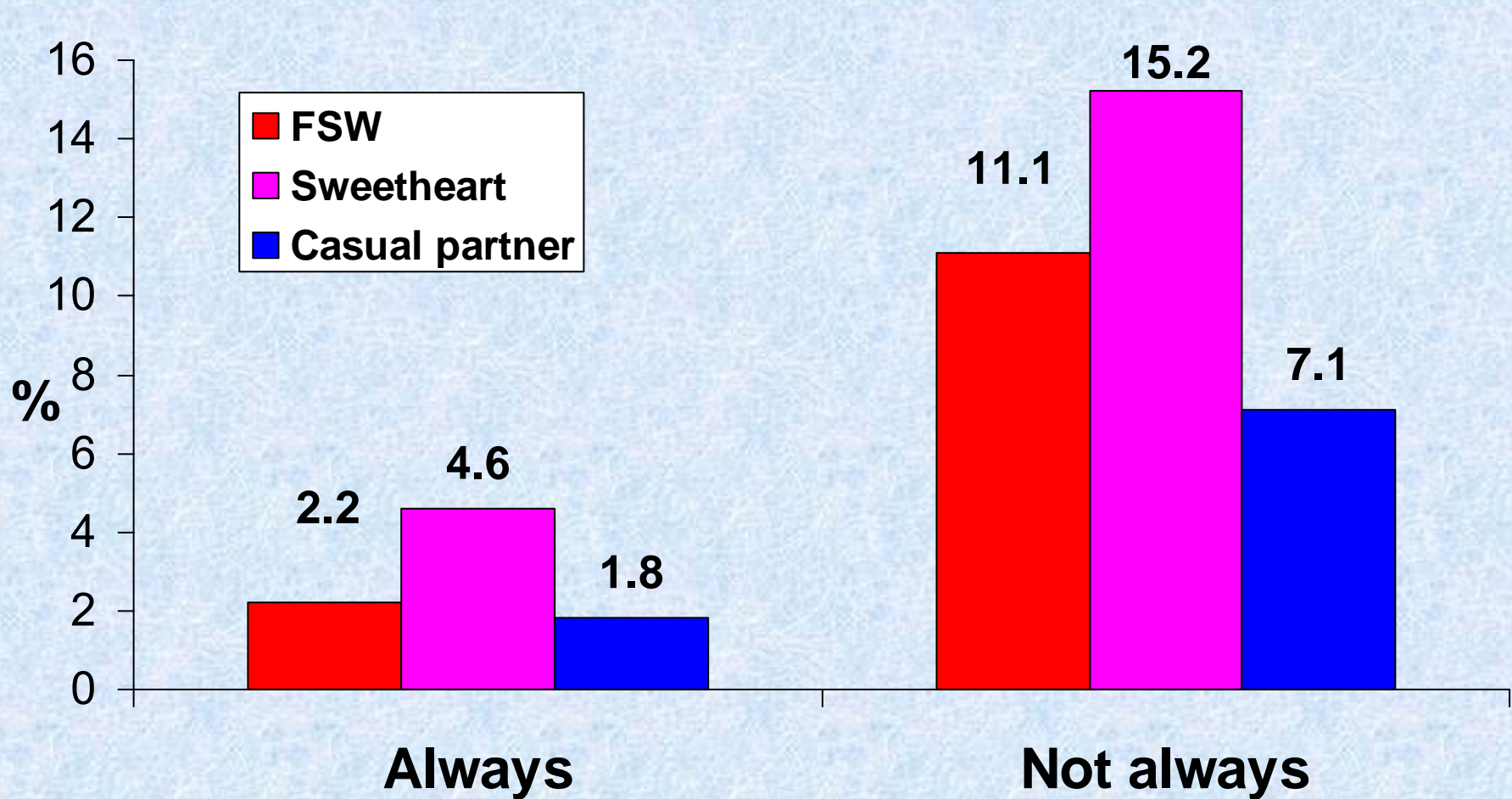


\* Sex with FSW specified in past year, while sex with sweetheart specified in the past 3 months.

Source: NCHADS, Cambodia STI Survey 2005

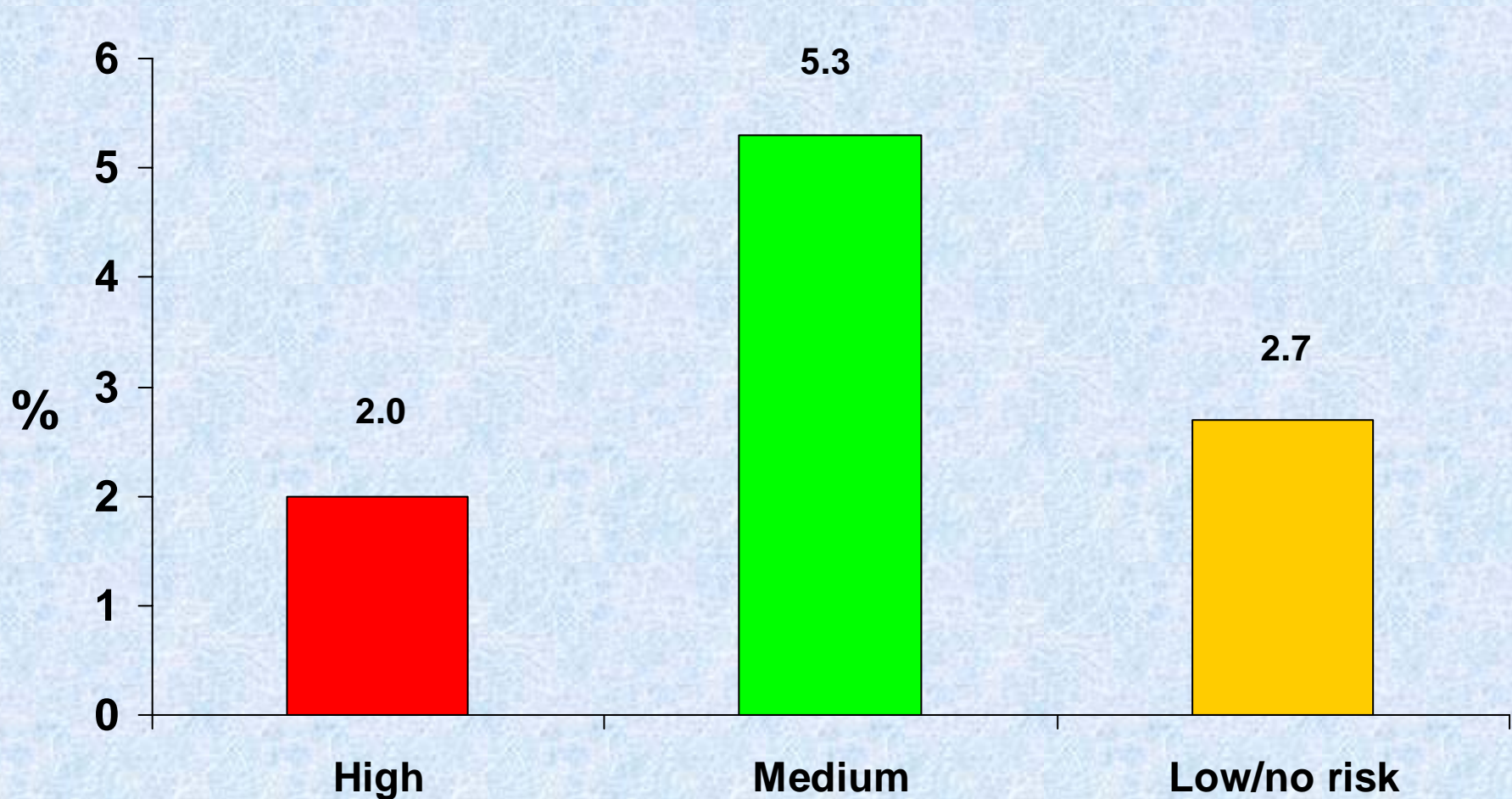


# STI prevalence among police by condom use in the past 3 months



Source: NCHADS, Cambodia STI Survey 2005

# STI prevalence among police by self-estimated risk of HIV



Source: NCHADS, Cambodia STI Survey 2005

# Summary and Recommendations

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# Risk behaviors among police

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- Prevalence of consistent condom use with FSW (88%) was high, but still low with sweetheart (39%) and casual partners (40%).
- Many policemen (25%) reported engaging in commercial sex in the past three months.
- Among policemen who reported ever having an STI:
  - 49% sought treatment from a medical facility (21% from public STD clinics), but
  - 34% sought treatment from pharmacies.

# STIs among Police

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- Chlamydia was the most common STI among police, but prevalence was low (3.2%).
- Comparing results of the 2000 and 2005 surveys, no significant difference in STI prevalence was observed.
- Inconsistent use of condoms and having sex with a sweetheart appear to be risk factors for STI among police.

# Police: Recommendations

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- Consistent use of condoms should be promoted, not only for sex with FSW, but also with sweethearts and casual partners
- Public STI services should be promoted to increase awareness among policemen of their availability and to reduce dependence of policemen on pharmacies for treatment

# MSM: Age groups and education

<i>Mean age: Phnom Penh 22; Provinces 24</i>			
	<b>Phnom Penh</b>	<b>Provinces</b>	<b>Total</b>
	<b>%</b>	<b>%</b>	<b>%</b>
<b>Age groups</b>			
15-19	25.8	30.5	27.9
20-24	39.1	51.0	44.5
25-29	18.1	12.5	15.5
≥ 30	17.1	6.0	12
<b>Schooling</b>			
No school	14.4	2.8	9.1
Primary school	21.1	28.5	24.5
Secondary school	55.0	66.3	60.2
University level	9.4	2.4	6.2

Source: NCHADS, Cambodia STI Survey 2005

# Marital status and living arrangement of MSM, by survey site

		Phnom Penh	Provinces	Total
		%	%	%
<b>Marital status</b>	Currently married	5.4	2.8	4.2
	Divorced / widowers	4.3	1.2	2.9
	Never Married	90.3	95.9	92.8
<b>Currently living with</b>	Wife	4.0	2.0	3.1
	Parents / relatives	67.9	81.1	73.9
	Friends / colleagues	16.7	11.6	14.4
	Alone	11.4	5.2	8.6

Source: NCHADS, Cambodia STI Survey 2005



# Self-identified gender of MSM, by survey site

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<b>Self identified gender</b>	<b>Phnom Penh</b>	<b>Province</b>	<b>Total</b>
	<b>%</b>	<b>%</b>	<b>%</b>
Man	36.9	56.5	45.8
Woman	33.8	37.9	35.7
Both	29.4	5.7	18.5

# Profession of MSM by survey site

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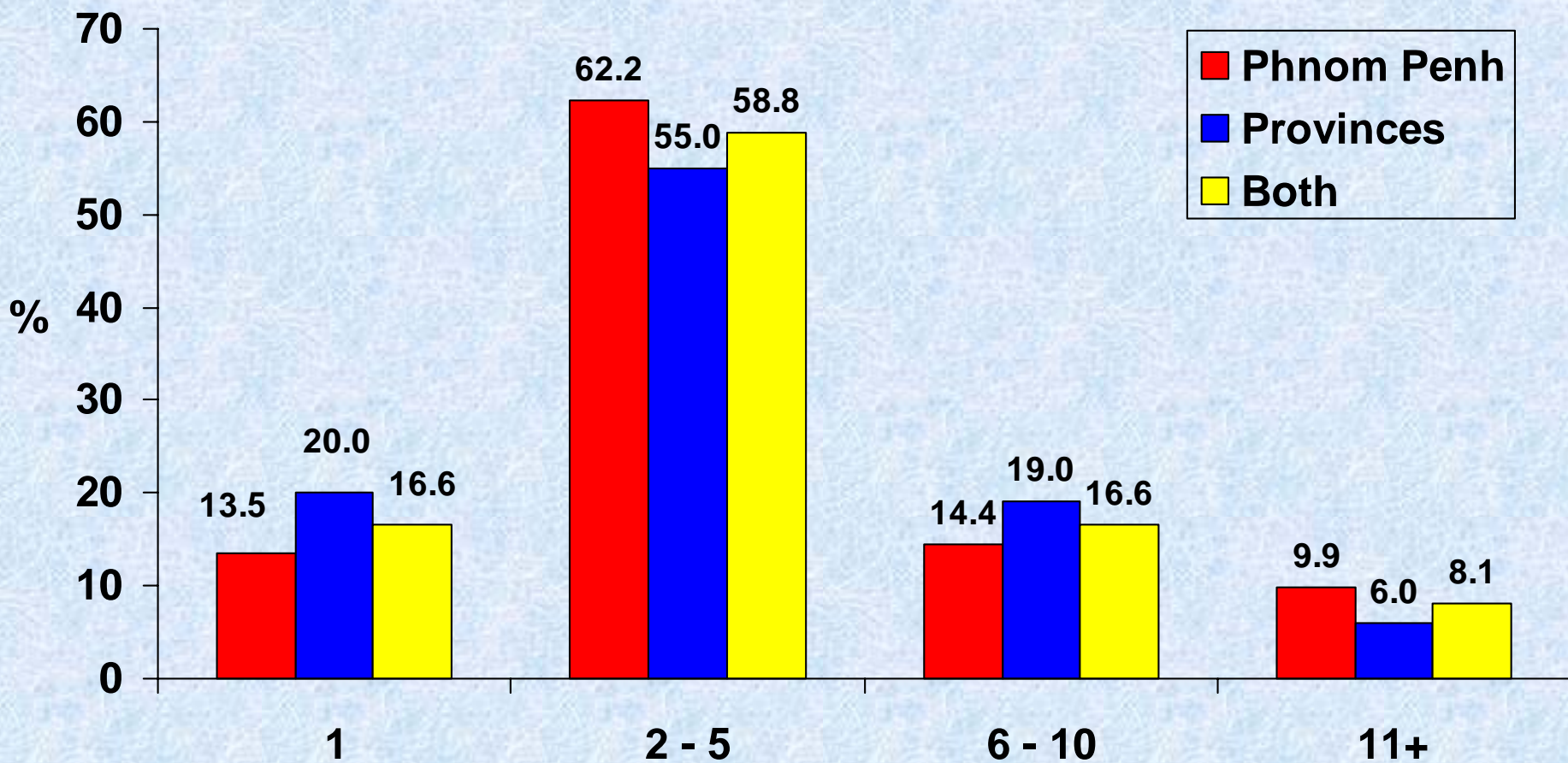
<b>PROFESSION</b>	<b>Phnom Penh</b>	<b>Province</b>	<b>Total</b>
Unemployed	18.7	12.9	16.1
Student	24.8	26.5	25.5
Farmer / laborer	7.0	19.3	12.6
Seller	17.1	15.3	16.2
Private Co. / NGO worker	11.4	5.2	8.6
Hairdresser	9.7	8.8	9.3
Sex worker	5.7	2.0	4.0
Military / police / Gov staff	3.3	3.6	3.4
Motodub	2.0	2.4	2.2
Other	0.3	4.0	2.0

# Mobility of MSM, by survey site

	Phnom Penh		Provinces		Total	
<b>Number of months living in current city</b>						
Less than 3 years	6.0	%	15.5	%	10.3	%
More than 3 years	50.7	%	14.2	%	34.2	%
All my life	43.3	%	70.3	%	55.5	%
<b>Number of cities lived in past year</b>						
Never lived in other cities	87.0	%	51.4	%	72.0	%
Lived in at least one other city	13.0	%	48.6	%	27.0	%
Mean	1.2	Cities	2.1	Cities	1.6	Cities
Median	1	City	1	City	1	City
<b>Number of months living away from family in past year</b>						
Never lived away from family	57.5	%	55.7	%	56.6	%
1 to 3 months	13.2	%	18.6	%	15.7	%
4 to 12 months	29.3	%	25.8	%	27.7	%
Mean	3.1	Months	2.8	Months	3.0	Months
Median	0	Months	0	Months	0	Months

Source: NCHADS, Cambodia STI Survey 2005

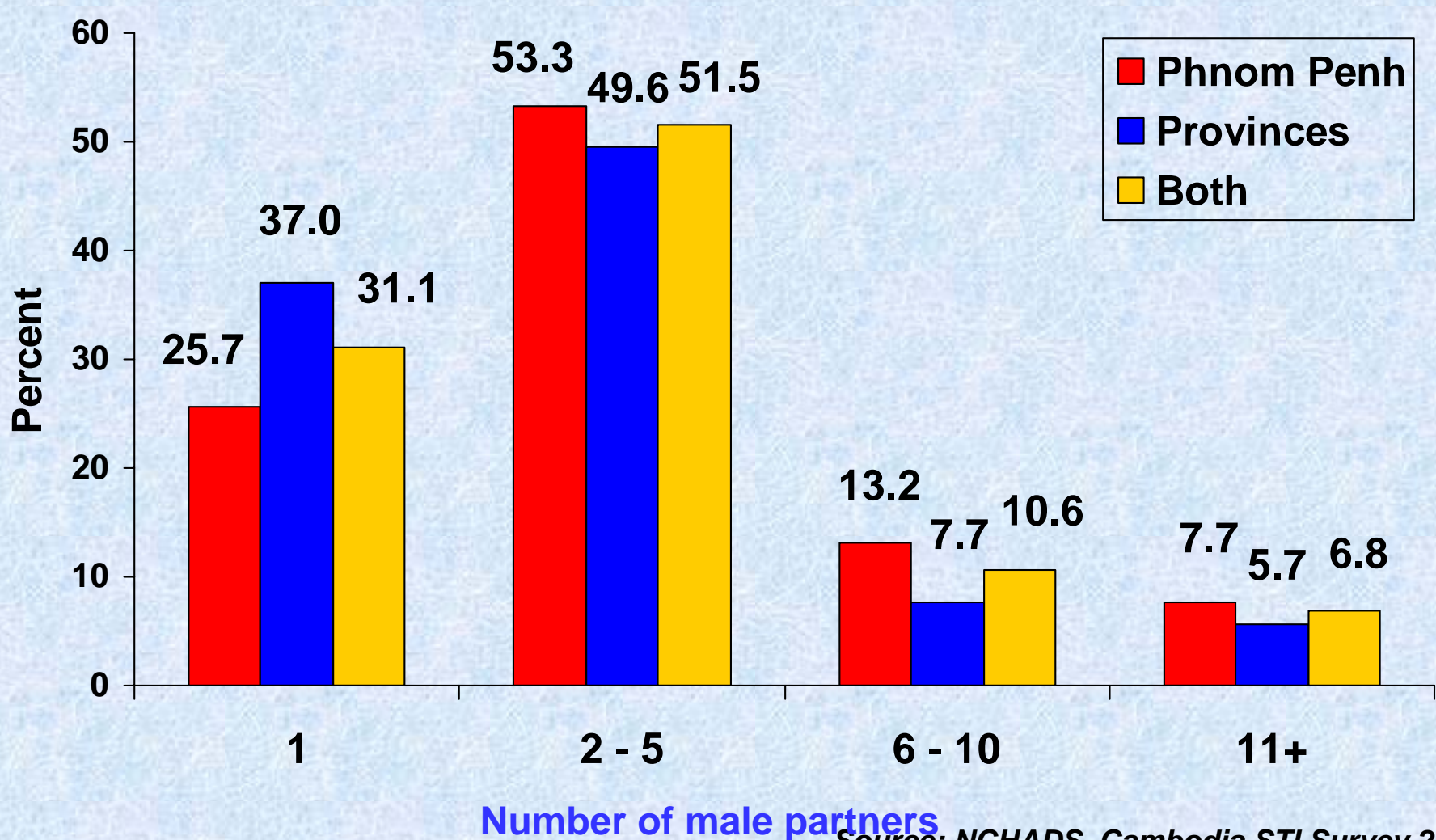
# MSM: Number of **female** sex partners in the **past year** by survey site (n = 211)



Number of female partners

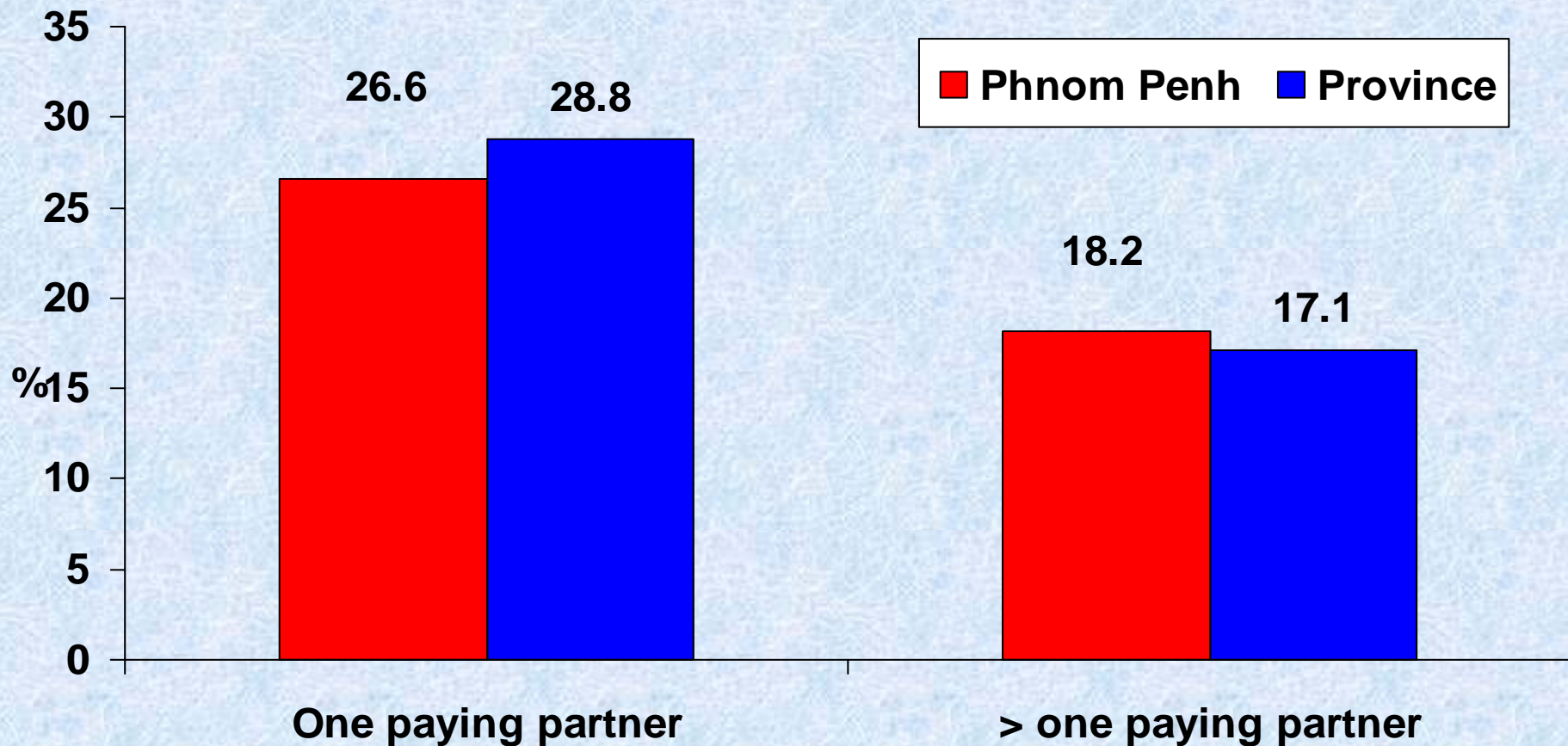
Source: NCHADS, Cambodia STI Survey 2005

# MSM: Number of **male** sex partners in the **past month** by survey site (n=518)



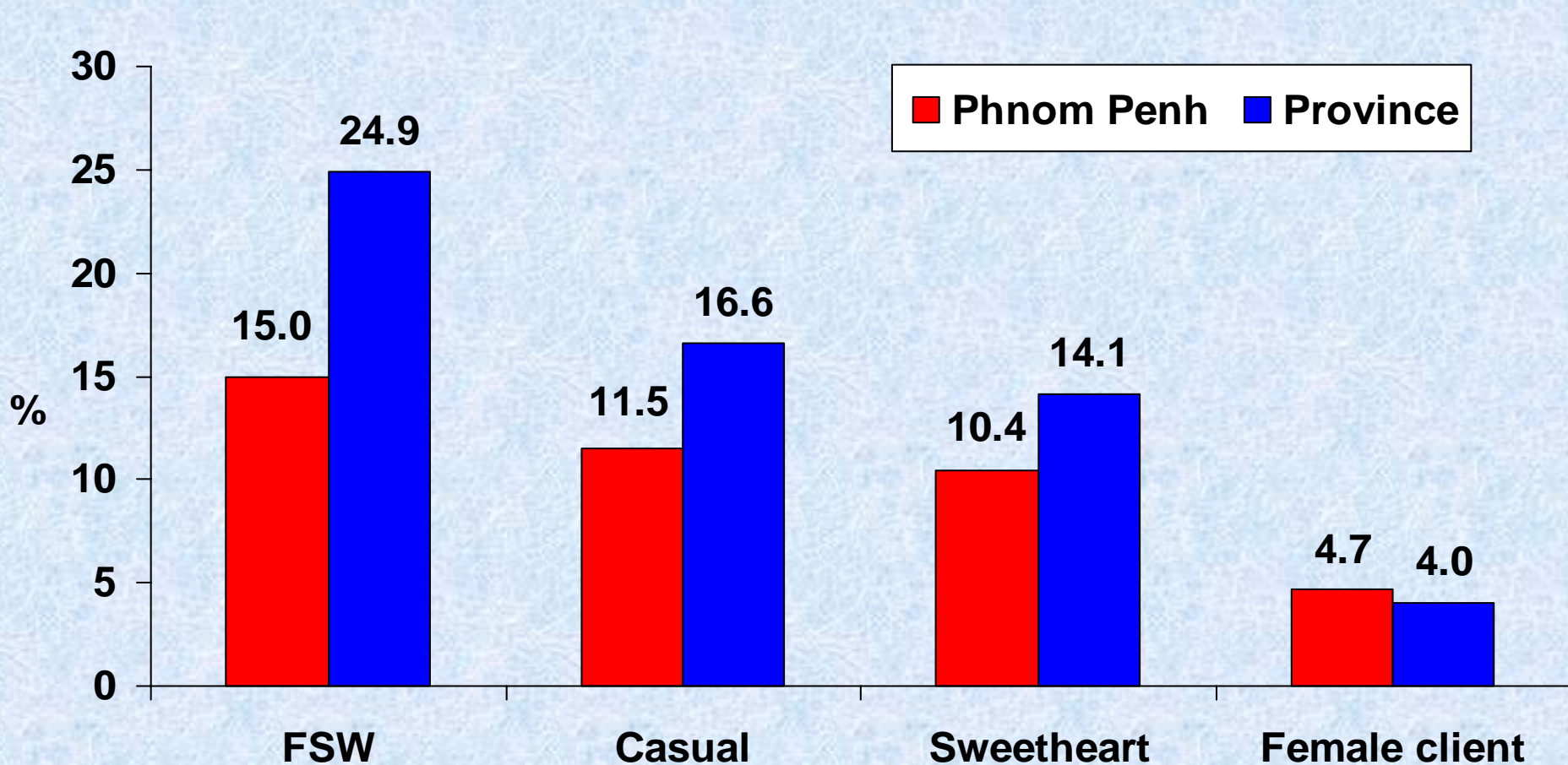
Source: NCHADS, Cambodia STI Survey 2005

# MSM who sold sex in past week, by number of male clients and site (n=254)



Source: NCHADS, Cambodia STI Survey 2005

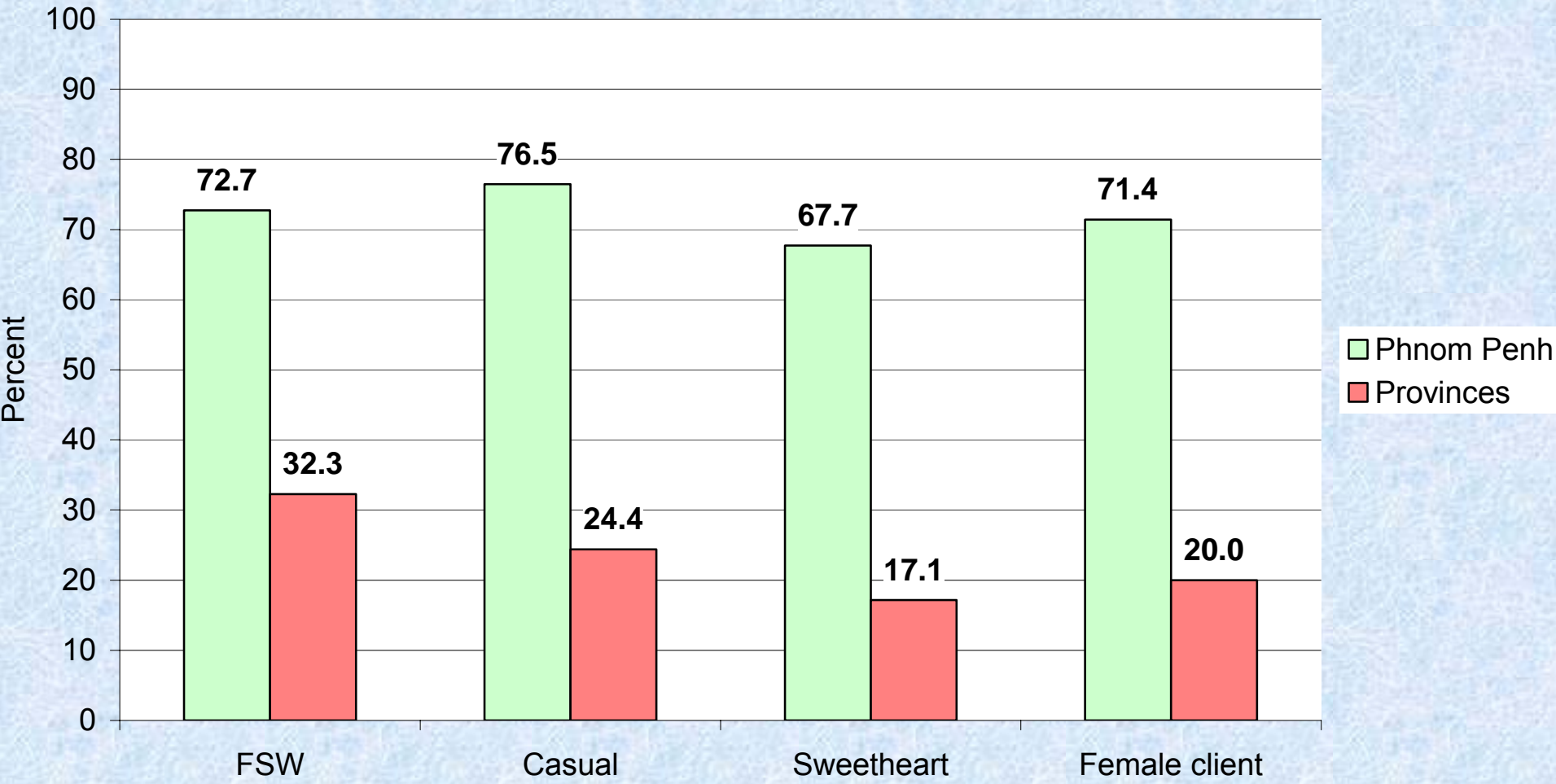
# MSM who reported sex with **women** in the past **month**, by **female** partner type and survey site



Female partner type

Source: NCHADS, Cambodia STI Survey 2005

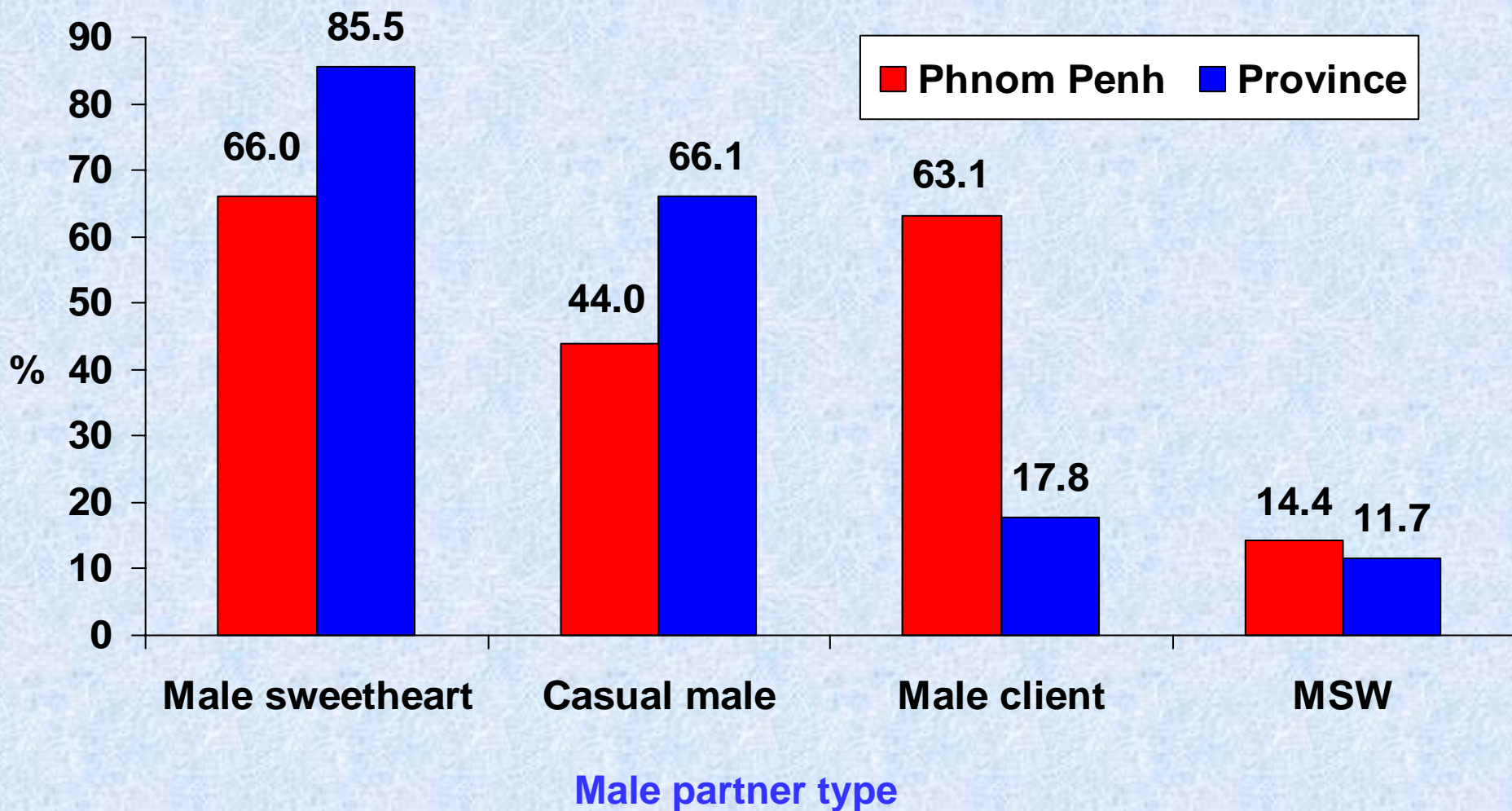
## Percent of MSM reporting consistent condom use with female partners in the past month, by partner type and survey site



Source: NCHADS, Cambodia STI Survey 2005

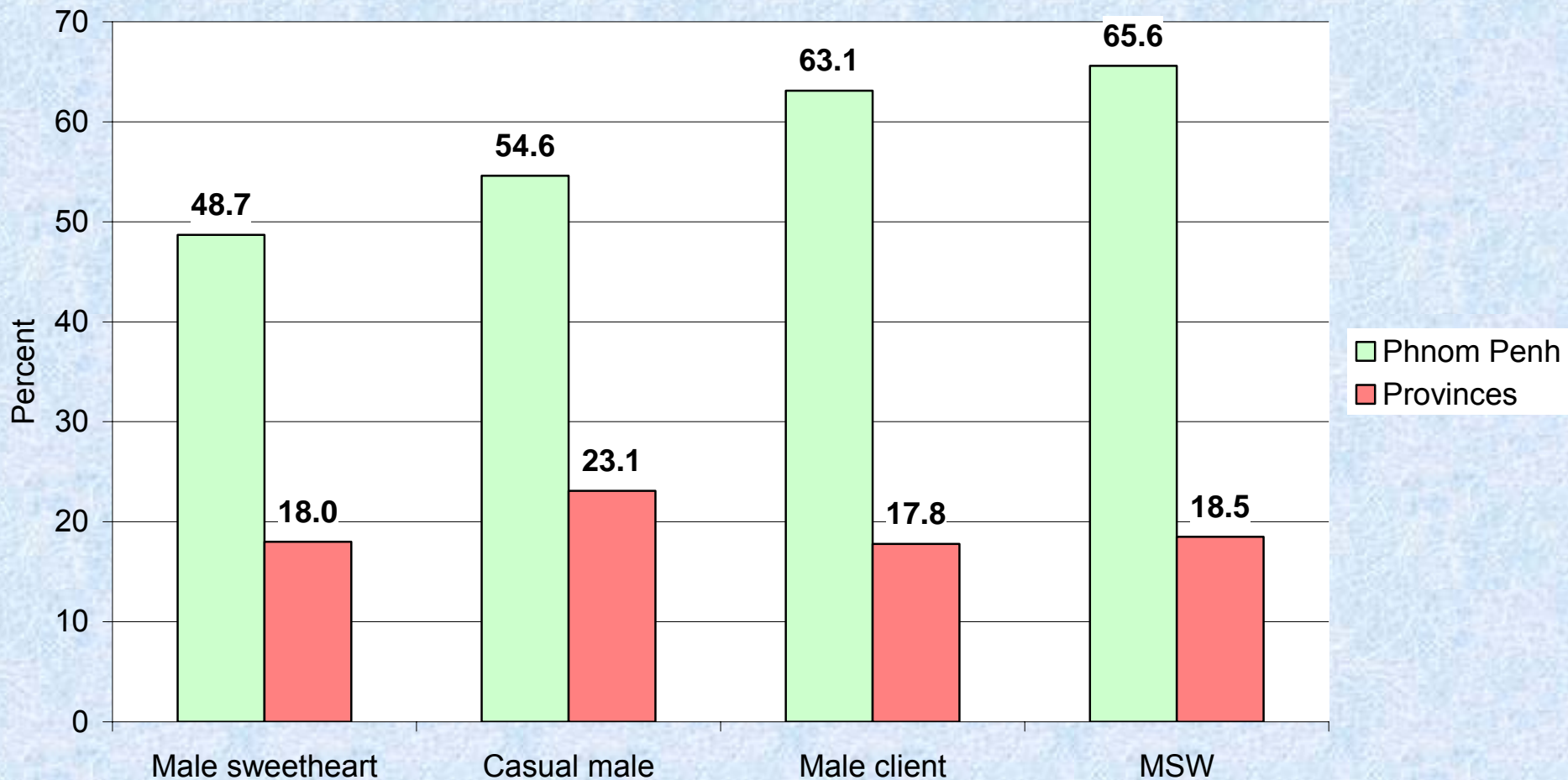


# MSM who reported sex with men in the past month, by male partner type and survey site



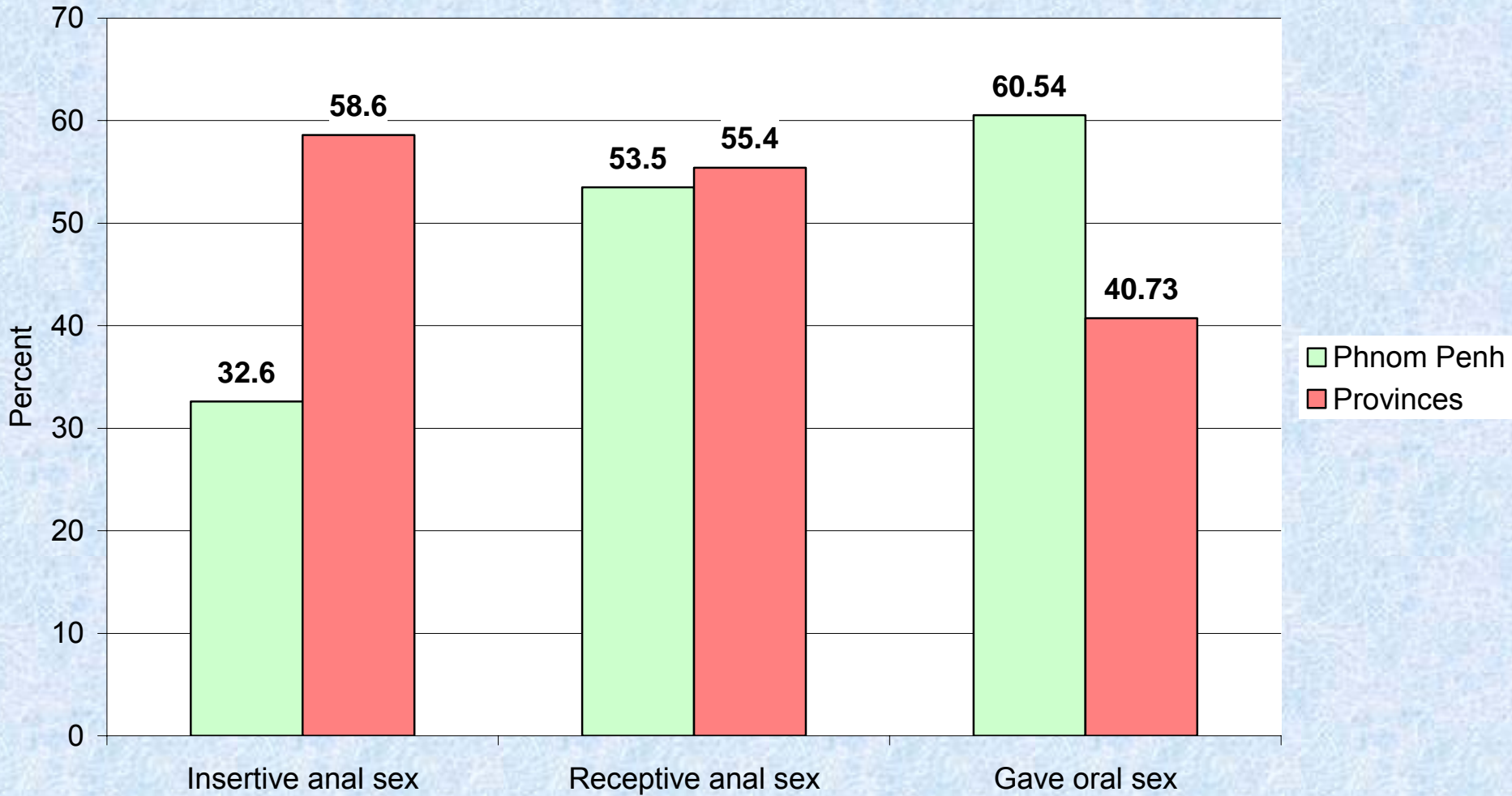
Source: NCHADS, Cambodia STI Survey 2005

### Percent of MSM reporting consistent condom use with male partners in the past month, by partner type and survey site



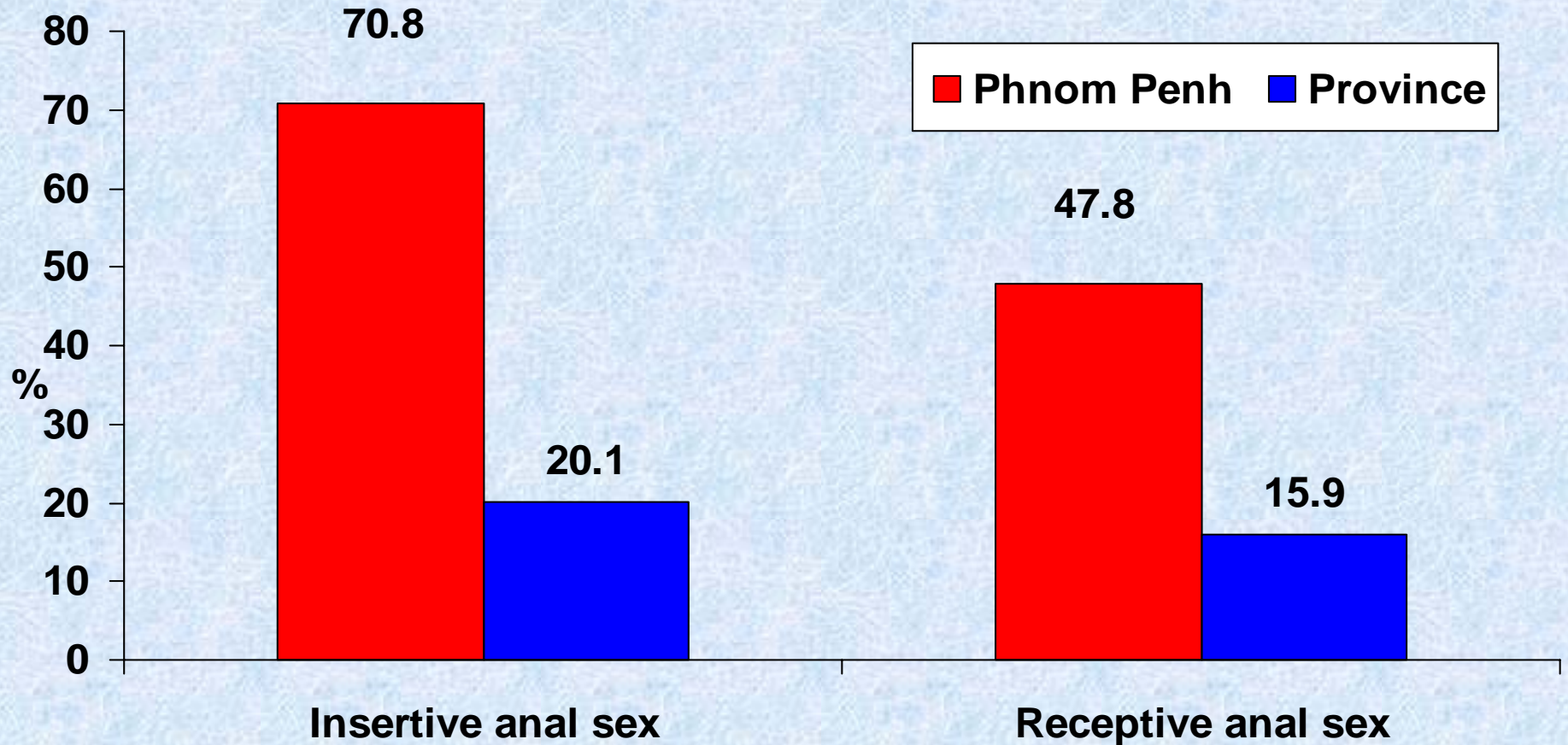
Source: NCHADS, Cambodia STI Survey 2005

### Male-to-male sexual behaviors in the past month, by survey site



Source: NCHADS, Cambodia STI Survey 2005

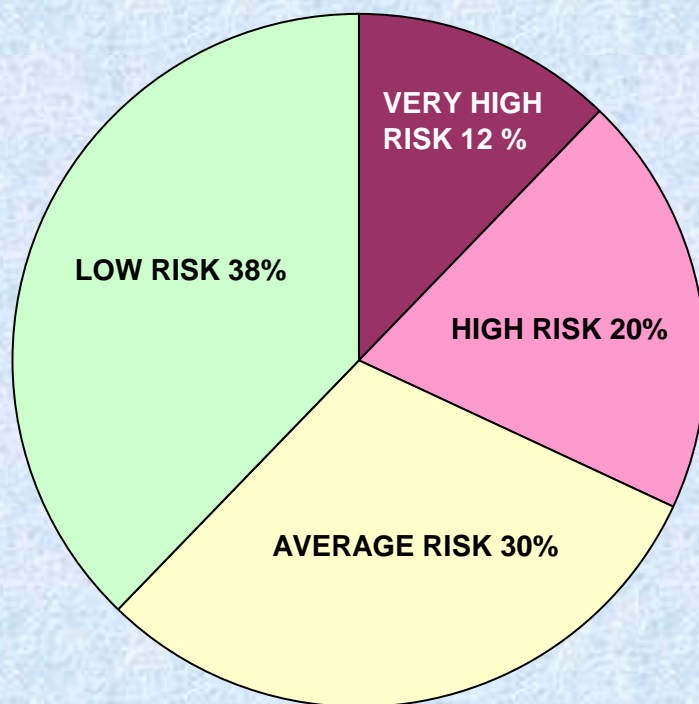
# MSM: Always condom use in the past month by type of anal sex and site



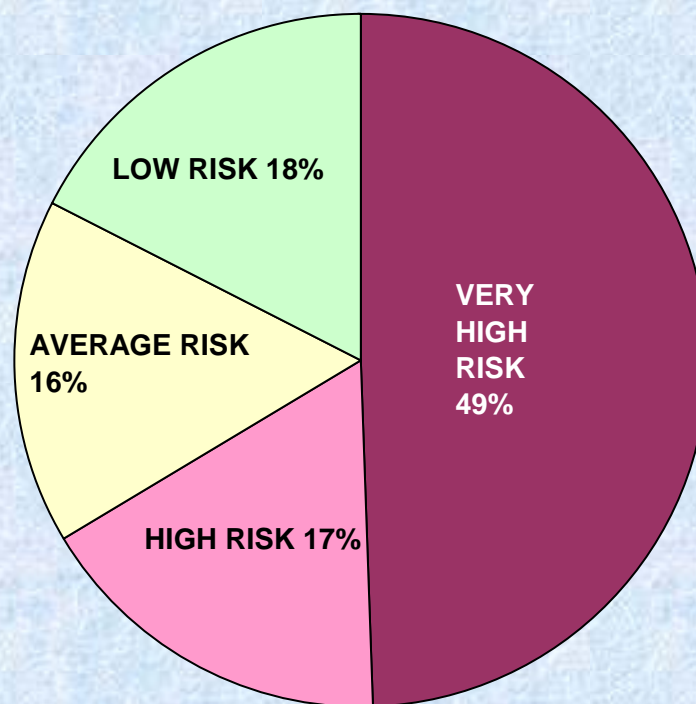
# Self-estimated level of risk for STI reported by MSM, by survey site

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PHNOM PENH



PROVINCES



Source: NCHADS, Cambodia STI Survey 2005

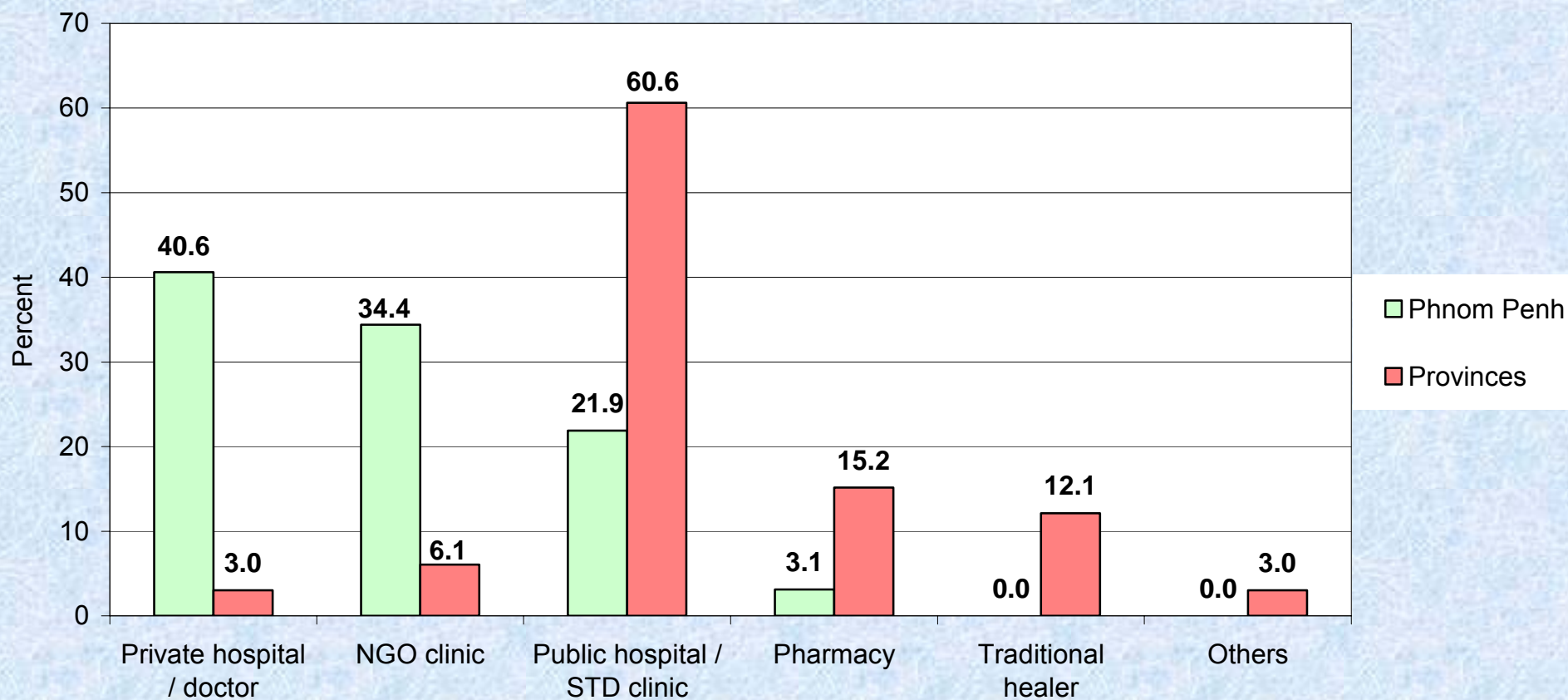
# Uptake of HIV testing services among MSM

	Phnom Penh n (%)	Provinces n (%)
<b>Ever tested for HIV</b>	<b>202 (67.6)</b>	<b>185 (74.6)</b>
<b>When last received HIV test result*</b>		
Never received HIV test results	4.1	3.2
0 to 6 months ago	46.4	76.2
7 to 12 months ago	19.6	7.8
13 months to 2 years ago	11.3	6.4
More than 2 years ago	18.6	6.4

\*Of those ever tested for HIV

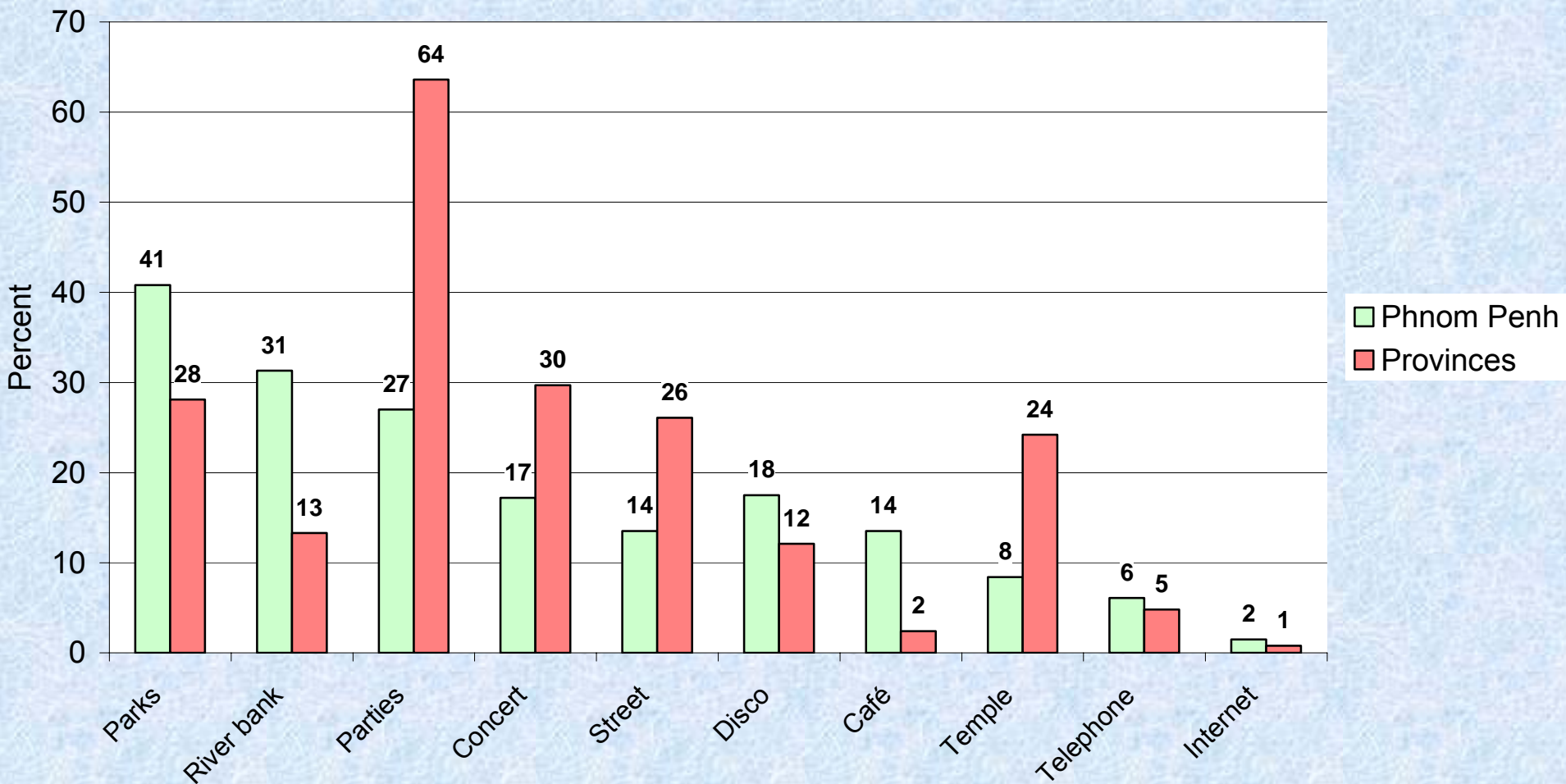
Source: NCHADS, Cambodia STI Survey 2005

## Places where MSM received STD treatment at last STD, by survey site



Source: NCHADS, Cambodia STI Survey 2005

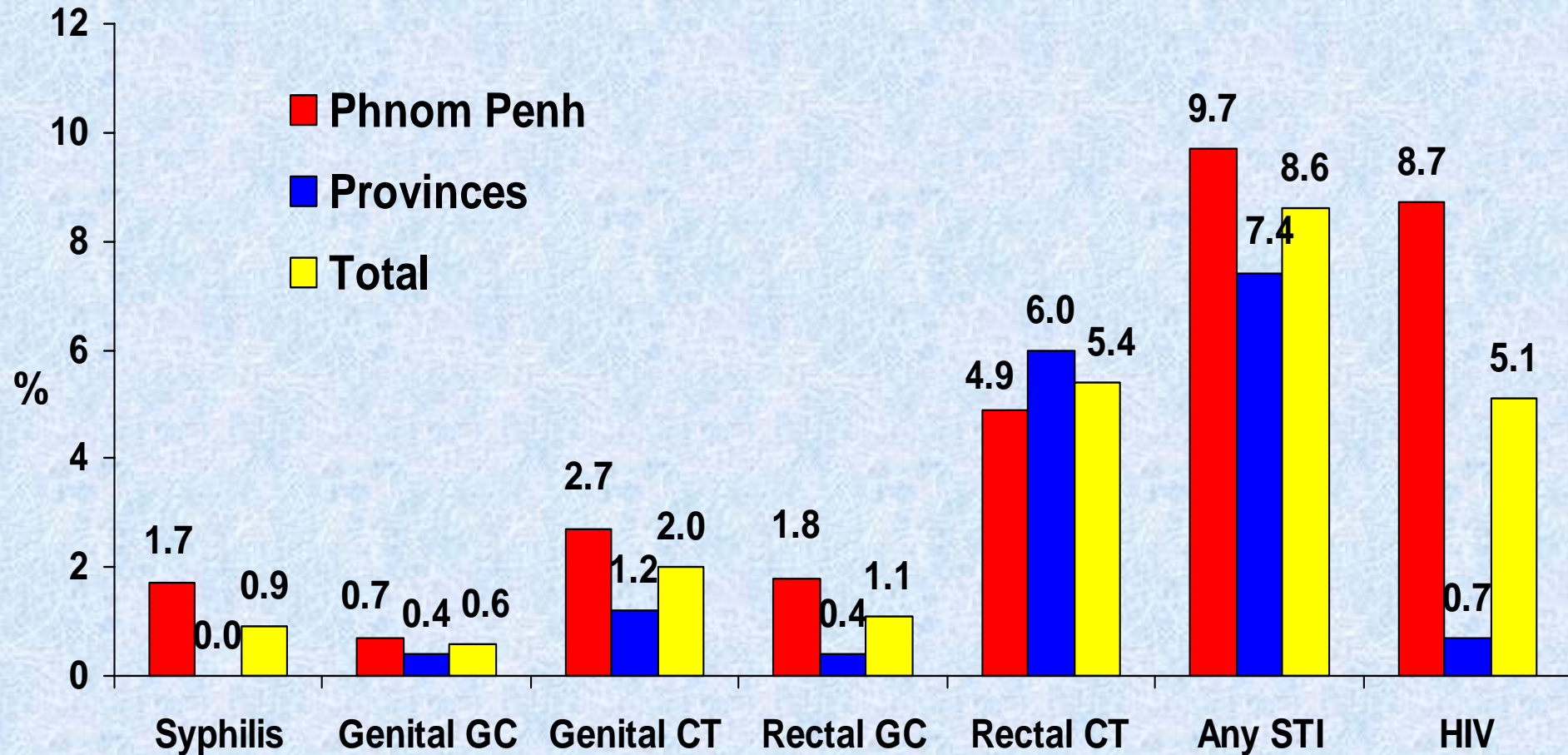
## Places frequently visited by MSM when seeking partners in the past 6 months, by survey site



Source: NCHADS, Cambodia STI Survey 2005

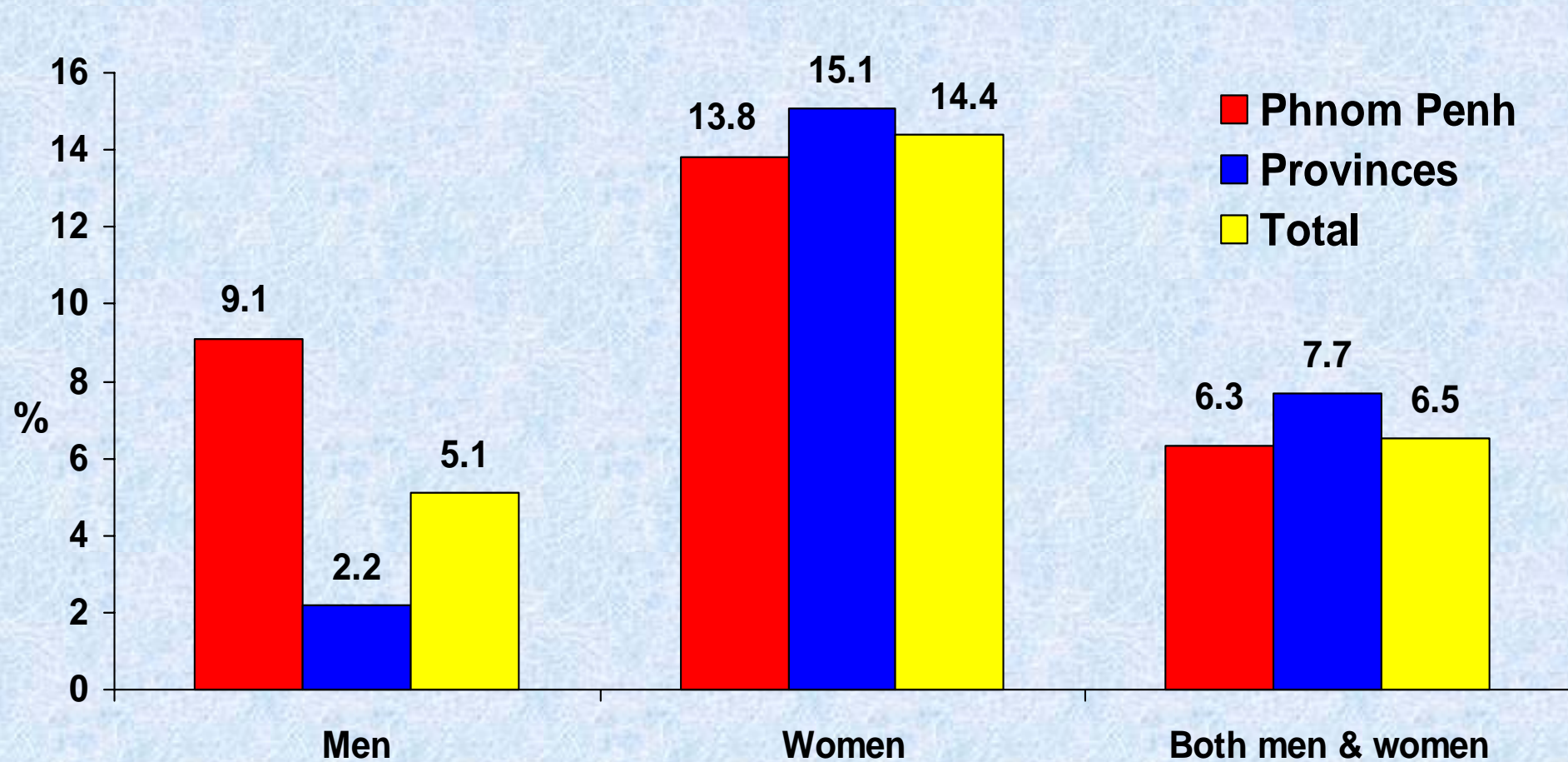


# STI prevalence among MSM by survey site



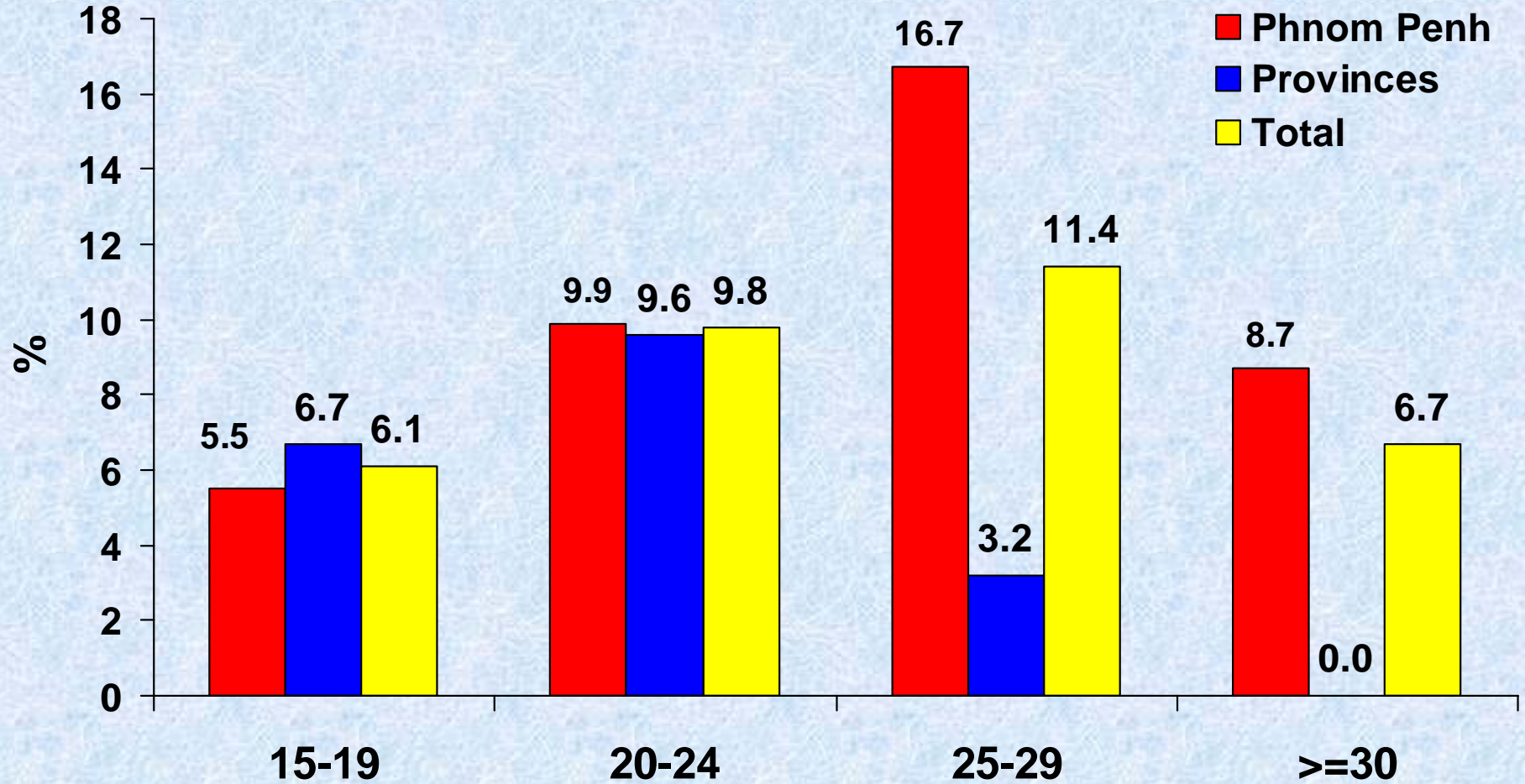
Source: NCHADS, Cambodia STI Survey 2005

# STI prevalence among MSM by self-identified gender and survey site



Source: NCHADS, Cambodia STI Survey 2005

# MSM: STI prevalence by age group



Age in years

Source: NCHADS, Cambodia STI Survey 2005

# Summary and Recommendations

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# Risk behaviors among MSM

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- About half of MSM reported having multiple sex partners in the past month.
- Selling sex to clients common among MSM, but more so among Phnom Penh MSM (63%) than among MSM in the provinces (18%)
- In general, prevalence of consistent condom use was low compared with that among FSW and police
- Prevalence of condom use with either male or female partners is much higher among Phnom Penh MSM compared with MSM in the provinces
- Most Phnom Penh MSM (75%) sought STI treatment from private and NGO clinics, while most MSM in the provinces sought care from public STI clinics (61%) and pharmacies (15%)

# STI among MSM

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- HIV prevalence among MSM was much higher in Phnom Penh (8.7%) than in the provinces (0.7%)
- STI prevalence among Phnom Penh MSM was not significantly different from that among MSM in the provinces
- Rectal chlamydia was the most common STI observed among MSM in Phnom Penh and the provinces
- Prevalence of rectal chlamydia and gonorrhea was greater than prevalence of urethral chlamydia and gonorrhea
- Prevalence of STI was higher among older MSM than among younger MSM
- MSM who identified themselves as women had a higher prevalence of STI than other MSM

# MSM: Recommendations

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- High prevalence of HIV and STI among MSM suggests the need for specific interventions tailored for this group
- Although HIV prevalence among MSM in the provinces was relatively low, the high prevalence of rectal chlamydia and high risk behavior indicates great potential for HIV spread. Prevention interventions are urgently needed to avert an HIV epidemic, including raising awareness that HIV can be transmitted between men and that condoms should be used consistently

# MSM: Recommendations (2)

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- Prevention messages for MSM should also include information about heterosexual transmission risk
- Outreach or interventions should be conducted in parks where many high-risk MSM congregate
- STI service providers should be informed that rectal chlamydia is the most common infection among Cambodian MSM
- STI services for MSM should be provided in a stigma-free environment and should always include rectal examination



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