

Success of respondent driven sampling
in high risk areas
to identify heterosexuals at high risk of HIV

Demographic results from the Houston Site of the
National HIV Behavioral Surveillance Project

Jan Risser, Paige Padgett, Jane Richards (UT
SPH)

Hafeez Rehman, Marcia Wolverson (HDHHS)

Objectives

- National HIV Behavioral Surveillance Project
 - initiated by the CDC to track changes in HIV risk behaviors in three high risk populations:
 - men who have sex with men (MSM),
 - injection drug users (IDU), and
 - heterosexuals living in high-risk areas (HET)
- Presented here:
 - findings from the HET study in Houston

High risk areas

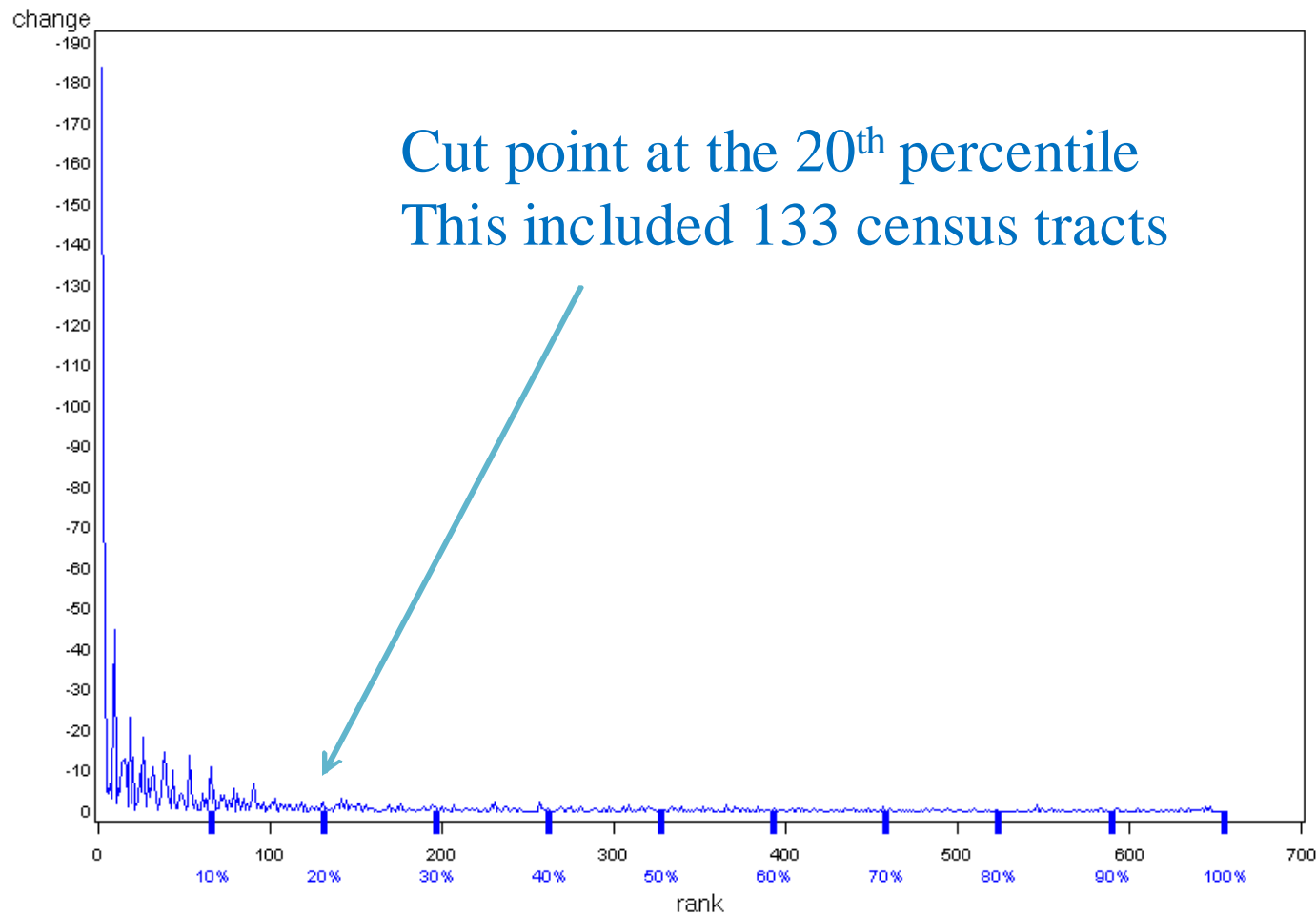
- Can you reach individuals at high risk of HIV by sampling from geographic areas with high rates of HIV?
 - High-risk areas were identified as census tracts with high rates of poverty and high rates of HIV infection.
 - High risk was defined by area rather than by individual behaviors.
 - This presentation provides information on the success of sampling from high risk areas to recruit high-risk individuals

Methods – area identification

- High risk areas were identified using methodology developed cooperatively by the CDC and State and Local Health Departments.
 - First, HIV case surveillance data were used to tabulate all HIV cases (living or deceased) by home census tract.
 - Cases counted included adult males and females heterosexually exposed to high risk individuals,
 - For females only, women with no identified risk factors.
 - The percent of persons living in poverty in each census tract was extracted from census data.
 - An index was developed using the sum of the standardized morbidity rates for poverty and HIV for each census tract.
 - The tracts were ranked by highest risk and the top 20% were chosen as our HRA.

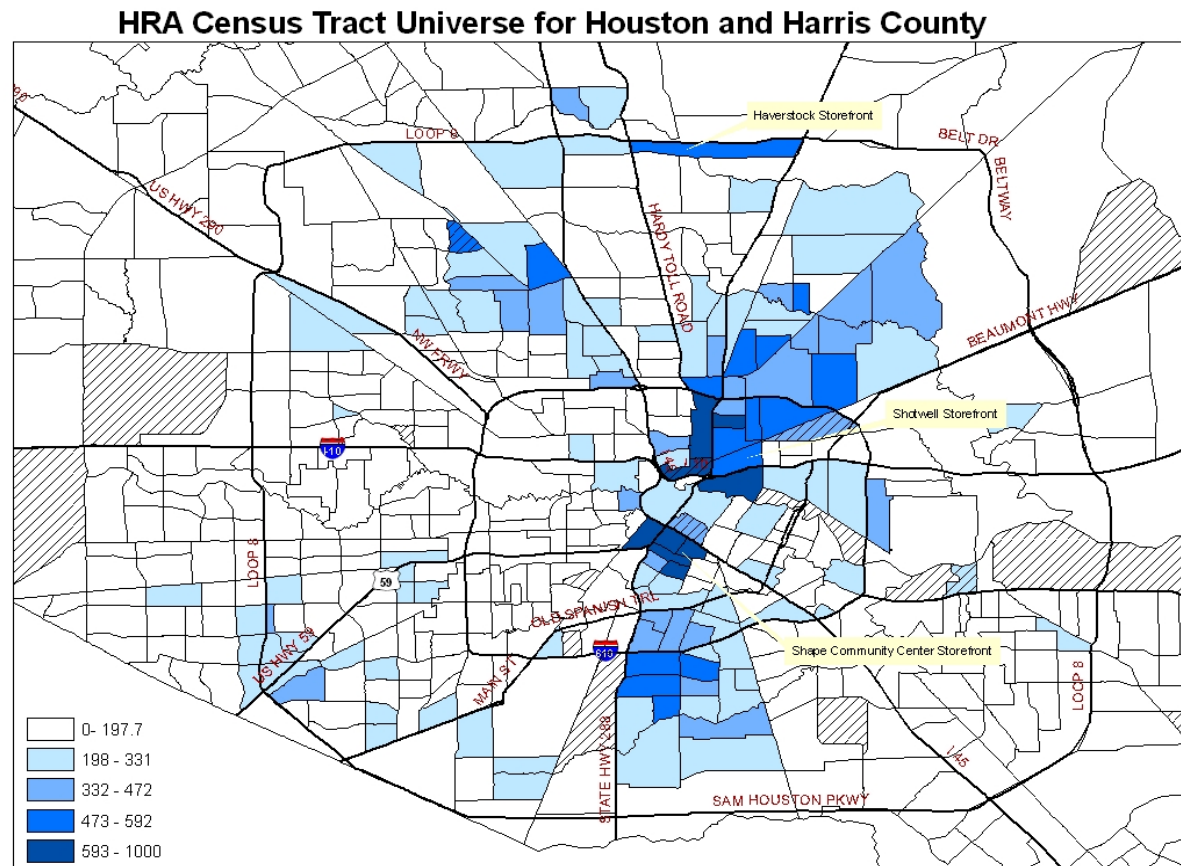
Choosing the HRA

Difference in Std. Index Values by Tract Ranks (descending)



High risk areas

- HRAs in Houston included 133 census tracts
- Highest risk included 3rd and 5th wards
- Also, a housing project near the airport called Haverstock



Methods – sampling



- Respondent driven sampling (RDS)
 - A modified snow-ball sampling method that allows for population estimates of risk factors
 - Each interviewed individual is invited to recruit up to 3 peers into the study (by being given 3 coupons)
 - dual incentives
 - one for the interview (\$20) and
 - up to three incentives (\$10 each) for successfully recruiting peers
 - Had to submit a valid coupon

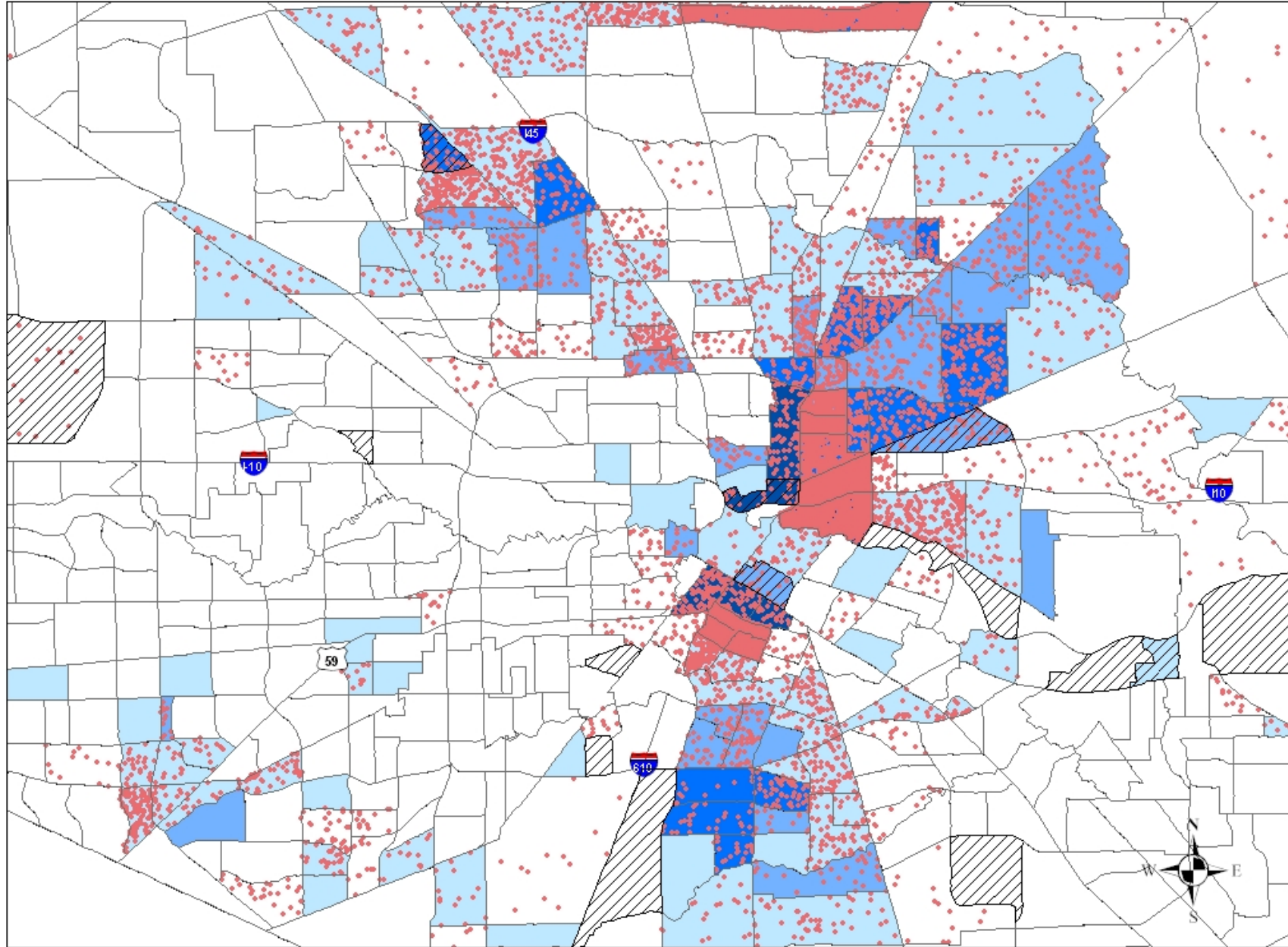
Methods – data collection

- Hand-held computers and the Questionnaire Development System (QDS) software
 - Basic demographics, sexual and drug use behaviors
 - HIV testing experience
 - HIV prevention services utilization
 - HIV testing using OraQuick for screening
 - OraSure for confirmation

Results - sampling

- To be eligible for this study, individuals had to be:
 - To be over age 18,
 - To have had heterosexual sex in the last year, and
 - To have not injected drugs in the last year.
- We distributed 2378 coupons
 - 1097 were returned:
 - 158 were ineligible
 - 939 consented to participate in the study
 - 10 were excluded because they were gay, lesbian, or transgender
 - 36 were excluded because they had injected drugs in the past 12 months
- This analysis presents data on 560 (63%) women and 333 (37%) men
 - Data were collected between November 2006 and June 2007
 - Data are preliminary – pending CDC's final release of local data
 - However, we do not expect substantial changes

Density Map of Respondents by HRA Census Tract Universe



Description of sample

- 57% were recruited by friends and neighbors
- 21% were recruited by family members
- 5% by sex partners
- 16% were recruited by drug partners, strangers or co-workers

- The sample was 98% African American
 - 3 (0.3%) participants were White
 - 16 (1.8%) participants were Hispanic

Mean age and mean age at sexual debut were:

	Males	Females	
Age	32.0 (\pm 10.4)	31.2 (\pm 10.1)	$p=0.25$
Sexual Debut		14.4 (\pm 2.8)	15.5 (\pm 2.5) $p<0.01$

Table 1. Marital Status, Education, and Employment.

	Males n=333	Females n=561	Total n=893
Marital Status			
Never Married	57%	57%	57%
			<i>p</i> =0.97
Education			
Less than 12th Grade	37%	36%	36%
Completed 12th or GED	47%	45%	46%
Some College or Technical	16%	19%	18%
			<i>p</i> =0.55
Employment			
Part or Full Time	48%	31%	37%
Unemployed	48%	62%	57%
Student	4%	7%	6%
			<i>p</i> <0.001
Income Less than \$5000 per year	32%	51%	44%
			<i>p</i> <0.001

Table 2. Other Descriptive Information.

	Males n=333	Females n=561	Total n=893
Ever Homeless	16%	12%	0.14 <i>p</i> <0.13
Of those Ever Homeless	n=53	n=69	n=122
Percent Currently Homeless	40%	32%	35% <i>p</i> <0.37
Current Health Insurance	29%	45%	39% <i>p</i> <0.001
Of those with Insurance	n=94	n=253	n=350
Percent with Medicaid	30%	64%	54% <i>p</i> <0.001
Visited Doctor Last Year	44%	65%	58% <i>p</i> <0.001
Of those who Visited Doctor	n=148	n=365	n=514
Percent offered HIV Test	39%	53%	49% <i>p</i> =0.002

Table 3. Sexual Behavior.

	Males n=333	Females n=559	
At Last Sex			
Condoms Used	34%	27%	<i>p</i> =0.02
Drugs & Alcohol Involved	64%	44%	<i>p</i> <0.001
Partner Ever in Jail or Prison	27%	56%	<i>p</i> <0.001
In Last 12 Months			
Mean Number Partners	n=333 6.1 ± 16.7	n=559 5.2 ± 17.8	<i>p</i> =0.42
Mean Number Main Partners	n=225 1.5 ± 1.6	n=336 1.5 ± 1.6	<i>p</i> =0.79
Mean Number Casual Partners	n=205 5.2 ± 13.8	n=300 3.2 ± 6.1	<i>p</i> =0.03
Mean Number Exchange Partners	n=48 11.1 ± 29.4	n=111 10.8 ± 35.3	<i>p</i> =0.95

Table 4. Partner Type at Last Sex.

	Males n=333	Females n=559	
Last Sexual Partner			
Main	62%	70%	
Casual	29%	22%	
Exchange	9%	8%	<i>p</i> = 0.16
Condom used with Last Partner			
Main	26%	33%	
Casual	65%	47%	
Exchange	42%	37%	

Table 5. HIV Testing Behavior

	Males n=333	Females n=559	
Last Sexual Partner			
Knew Partners HIV Status	57%	53%	<i>p</i> =0.28
Partner HIV negative (self-report)	99%	99%	
Ever Tested for HIV	77%	84%	<i>p</i> =0.01
Of those offered HIV testing by provider	n=57	n=195	
Percent Ever Tested	96%	98%	
Of Ever Tested	n=255	n=467	
Percent Testing in Last 2 Years	74%	76%	<i>p</i> =0.47

Table 6. HIV Status

Self-reported HIV Status	n=254	n=467	
Number (Percent) Positive	2 (0.8%)	1 (0.2%)	3 (0.3%)
HIV Positive at Testing (confirmed)	n=333	n=559	
Number (Percent) Positive	7 (2.1%)	9 (1.6%)	16 (1.8%)

Risky behaviors

- 60% of females and 68% of males reported more than one sexual partner in the past year
 - Of these, 92% of females and 91% of males reported that their last sexual encounter was with a main or casual partner (rather than an exchange partner)
- Among individuals with multiple partners, condom use at last sexual encounter was reported among:
 - 29% of females and
 - 39% of males

Condom use

- In multivariate analysis:
- Males with multiple partners were more likely to use condoms if they were younger and if their sexual encounter was with a casual partner.
 - Duration of the partnership, self-reported concurrency, perceived partner concurrency, knowledge of partner's HIV status, and alcohol and drug use did not affect the odds of condom use among males.
- Females with multiple partners were more likely to use condoms if they were younger, if the sexual encounter was with a casual partner, and if they were aware of their partner's HIV status.
 - Duration of the partnership, self-reported concurrency, and alcohol and drug use did not affect the odds of condom use among females.

Conclusions

- Concern in the design phase
 - how to find individuals at high risk for HIV by sampling peer-recruited individuals from high risk areas
 - findings from our sample of 893 men and women indicate that we did capture a sample at high risk of HIV infection
- Using respondent driven sampling in geographic areas identified as high risk, we were able to accumulate a sample of men and women, over age 18, who had had heterosexual sex in the last year, and who had not injected drugs in the last year.

Conclusions

- The sample was:
 - Relatively young and had initiated sex in their early teens
 - Mostly unemployed
 - half reported income less than \$5000 per year
- While the majority were uninsured, more than half visited a health care provider in the past year
- Women were more likely than men to have their provider offer HIV testing
 - Individuals who were offered HIV testing by their provider were more likely to have ever tested than those not offered testing
- The majority had never married
 - Almost half were more than 30 years old

Conclusions

- All had to have at least 1 partner in the last year to be eligible for the study
 - Most had more than two
 - More than half the women reported that their last sexual partner had been in jail or prison at some time
- Nearly 10% of the men and women reported that their last sex was exchange sex
 - Generally, males paid and women received payment or goods and services in exchange for sex
 - Even with exchange sex, condoms were seldom used

Conclusions

- Both males and females were significantly more likely to use condoms with their casual partners than their main partners.
- Condom use was also more likely among:
 - younger men
 - women who had knowledge of their partner's HIV status
 - This may indicate that women with greater awareness of sexual risks take measures to protect their health

Conclusions

- Our most striking finding was the high rate of HIV at testing
 - 1.8% of the sample tested positive for HIV
 - 80% (13/16) of the individuals we identified as infected with HIV did not report knowing of their infection prior to our testing

References

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