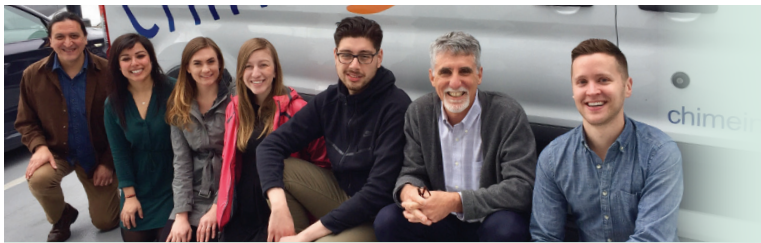


Chime In 2016

Experience with Respondent-Driven Sampling
and Low Socioeconomic Status Heterosexuals



What is Chime In?

Chime In is the name of the Portland/Vancouver Metropolitan Statistical Area (MSA) instance of the National HIV Behavioral Surveillance (NHBS) system.¹ The funding for Chime In comes from the Centers for Disease Control and Prevention. Twenty-two US cities participate in NHBS to anonymously conduct an HIV test and collect data on demographics, sexual behavior and drug use. Populations of interest rotate annually on a three-year cycle and include:

1. Low socioeconomic (SES) heterosexuals.
2. Men who have sex with men (MSM).
3. People who inject drugs.

In 2016, low SES heterosexuals made up the population of interest. All participating cities used respondent-driven sampling (RDS) to identify participants. During the June through December sampling period, Chime In staff interviewed 507 people who met the following requirements:

- Residence within the MSA;²
- Age 18–60 years;
- Vaginal or anal sex with an opposite-gender partner during previous 12 months;
- Self-identified as male or female (not transgender);
- No injection drug use within the past 12 months; and
- Income at or below the federal poverty line **or** no more than a high school education.

Chime In sample

Table 1 includes information about the age, race, ethnicity, employment and housing status of the 507 eligible Chime In participants. Almost 61% of participants were younger than 40 years. Fifty-three percent were women. Fifty-two percent were Black/African-American. Only 15% reported full-time employment. Twenty percent were currently homeless. Another 19% had been homeless within the past year.

What is respondent-driven sampling?

Respondent-driven sampling (RDS) is a sampling method that takes advantage of social networks. It starts out with a small number of people who meet all of the criteria for participation, and live in a low-income census tract. These people, known as seeds, are recruited, interviewed, and given cash compensation for participation. Chime In staff asks each seed to recruit 3–5 others from their social network. If the seeds successfully recruit others, they receive additional cash compensation. Chime In compensated eligible recruits up to \$50 for participation, in addition to \$10 compensation for each person they successfully recruited from their own social networks. Recruiting proceeded in this manner, with each new participant compensated for their interview and anyone they successfully recruited, creating recruitment chains. Figure 1 shows the recruitment chains for Chime In participants. RDS analysis methods account for participants' network sizes, as well as homophily. Homophily, roughly translated, is the likelihood that a person will recruit another person of similar race, age, gender, etc. RDS advocates argue that, if done correctly, these adjustments allow investigators to use RDS data to make valid inferences about the whole population of participants, even though selection is not random.

¹ <https://www.cdc.gov/hiv/statistics/systems/nhbs/>

² Includes Clackamas, Columbia, Multnomah, Washington, and Yamhill counties in Oregon, and Clark and Skamania counties in Washington

Figure 1: Recruitment chain for Chime In, 2016

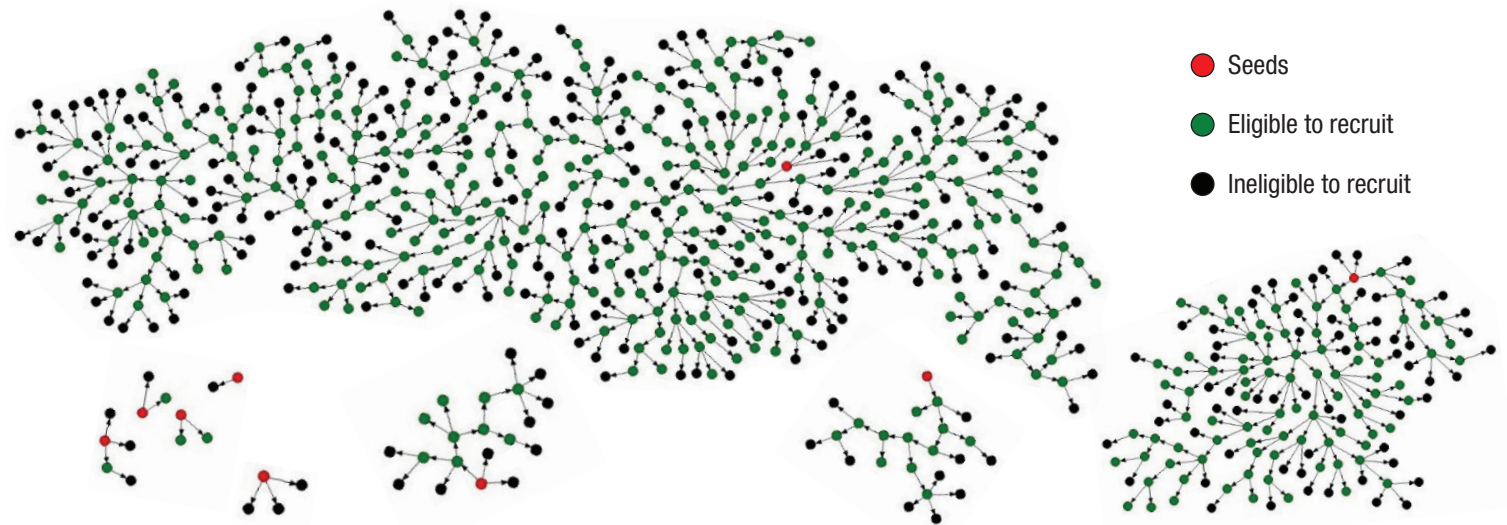


Table 1: Chime In demographics unadjusted numbers: high-risk heterosexuals, 2016

Characteristic	N (%)
Age (mean)	35.74
18–29	204 (40.24)
30–39	105 (20.71)
40–49	97 (19.13)
50–59	101 (19.92)
Sex	
Male	237 (46.75)
Female	270 (53.25)
Race/ethnicity	
NH White	113 (22.29)
NH Black	265 (52.27)
Hispanic, any race	50 (9.86)
NH Mixed	65 (12.82)
NH Other	14 (02.76)

Characteristic	N (%)
Employment	
Employed full-time	79 (15.58)
Employed part-time	106 (20.91)
Unemployed	151 (29.78)
Unable to work for health reasons	89 (17.55)
Other	82 (16.17)
Homelessness	
Not homeless*	313 (61.86)
Not currently homeless**	94 (18.58)
Currently homeless	99 (19.57)

NH=Not Hispanic

* Did not report being homeless in the last 12 months

**Reported being homeless in the last 12 months but not homeless at the time of the interview

Did respondent-driven sampling work for Chime In?

The demographic constitution of the Chime In sample was unexpected based on existing data about Portland residents of low SES. This includes data from the United States Census Bureau and from the Oregon Behavioral Risk Factor Surveillance Survey (BRFSS). Specifically, the 2016 Chime In sample included substantially more Black/ African-American participants and fewer White participants than expected. Table 2 shows how the Chime In sample differed from other estimates of racial and ethnic population sizes for the Portland area.

Table 2: Race and ethnicity of low SES Portland metro: A comparison of findings

	United States Census Bureau 2015*	Behavioral Risk Factor Surveillance Survey 2015**	Chime In 2016***
Race	%	%	% (95% confidence interval)
White	77.2	80.1	28.6 (21.1, 36.2)
Black	6.2	3.3	53.0 (45.2, 61.3)
American Indian/Alaskan Native	1.4	2.7	3.8 (0.7, 8.6)
Asian	5.5	4.9	0.5 (0.0, 1.3)
Other race	4.3	4.7	3.2 (1.5, 5.7)
Multiple	5.3	4.3	10.9 (7.1, 14.6)
Ethnicity	%	%	% (95% confidence interval)
Hispanic/Latino	18.9	23.4	10.2 (6.5, 14.6)

* Total population includes residents of the seven counties who are between 18-59 and live at or below the poverty level

** Total population includes residents of five out of the seven counties (those in Oregon) between 18 and 59 and no more education than a high school diploma/GED

*** Chime In prevalence estimates obtained by applying the respondent-driven sampling analysis tool on qualifying observations

Why is the racial and ethnic constitution of the Chime In sample so different than predicted by United States Census Bureau and Behavioral Risk Factor Surveillance Survey?

We don't fully understand why Chime In recruited more Black/African-American people than expected. Several factors likely contributed:

Field site location: Chime In located its interview site in an office complex in an area of East Portland. This area is one that United States Census Bureau tells us has higher percentages of Black/African-American residents than the average Portland/Vancouver MSA (Figure 2 and 3). Thus, likely making the site somewhat more accessible and convenient to Black/African-Americans than for White Portland residents. Furthermore, census data, being several years old, might not accurately reflect the demographics of East Portland. During the 2016 formative phase of Chime In, prior to fielding the survey, several key informants told us of displacement of Black/African-Americans from Northeast Portland to East Portland. The informants attributed this migration to rapid gentrification and rising housing costs in Northeast Portland. This suggests that census data might not be keeping pace with the rate of population redistribution by race in the Portland/Vancouver MSA.

Differential recruitment success: Careful analysis of recruitment chains indicate that Black/African-American participants recruited more quickly and more successfully than White participants did. We do not know why.

Dead end recruitment chains: White participants were more likely than Black/African-American participants to report being homeless. Fifty dollars cash compensation is probably more likely to motivate homeless people than people with stable housing. Therefore, Chime In

staff became concerned about recruiting too many homeless participants and in consultation with CDC, changed the participation criteria to permit homeless people to participate, but not to recruit others. This led to premature ends of recruitment chains. In addition, White participants were more likely to recruit people who had recently used injection drugs. Injection drug users were not eligible to recruit others. For both of these reasons, recruitment chains were more likely to sustain themselves with Black/African-American participants.

What does this mean for interpreting the Chime In sample?

The race and ethnicity of the Chime In sample for 2016 likely includes proportionally more Blacks/African-Americans participants than would be expected among all low socioeconomic status people in the Portland/Vancouver MSA. The Chime In sample might also differ from the target population in other important ways not as easily recognized as race. We will continue to investigate representation biases in our data that may affect validity of other population inferences. Chime In staff and users of the Chime In data will need to be cautious about making inferences for all low SES heterosexuals in the Portland/Vancouver MSA. Chime In staff will take care to adjust forthcoming analyses for race and ethnicity or to stratify by race and ethnicity. We recommend that other users be mindful of this issue.

More information

During our interviews, many more topics were covered. Please go to <https://www.cdc.gov/hiv/pdf/statistics/systems/nhbs/cdc-nhbs-crq-idu4-deployed.pdf> for a complete list of questions. If you are interested in learning more about Chime In data, please contact Breanna McArdle, data manager for Chime In, at breanna.mcardle@state.or.us.

Figure 2: Black/African-American populations by census tract, Portland MSA

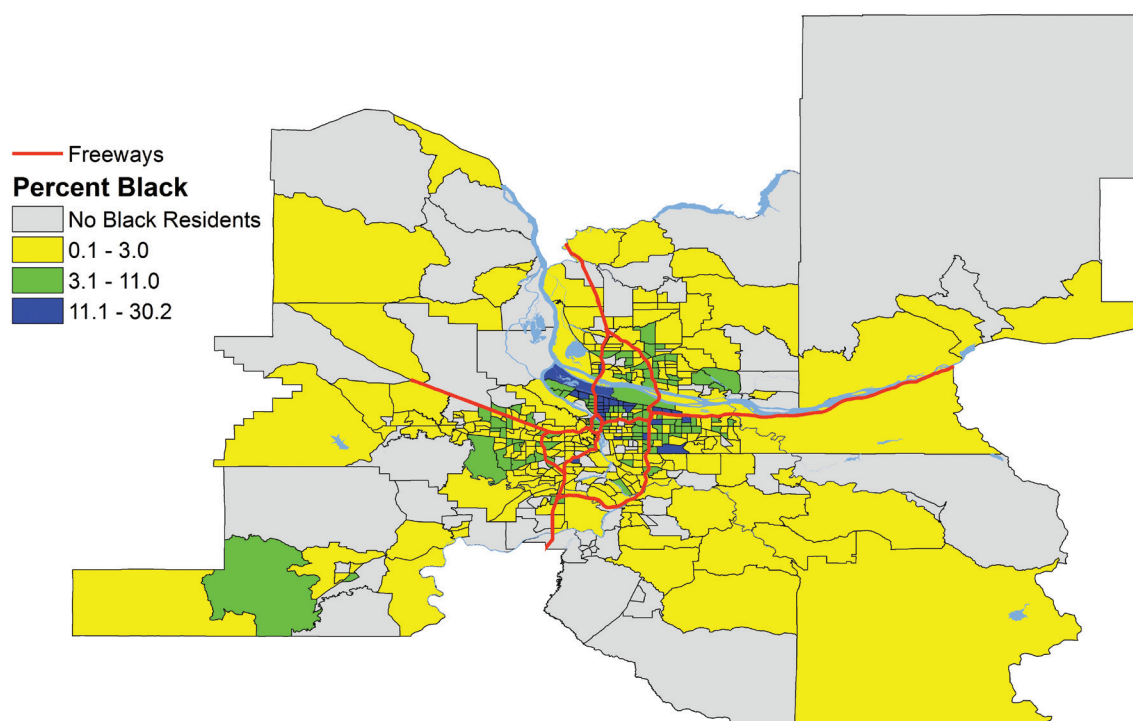
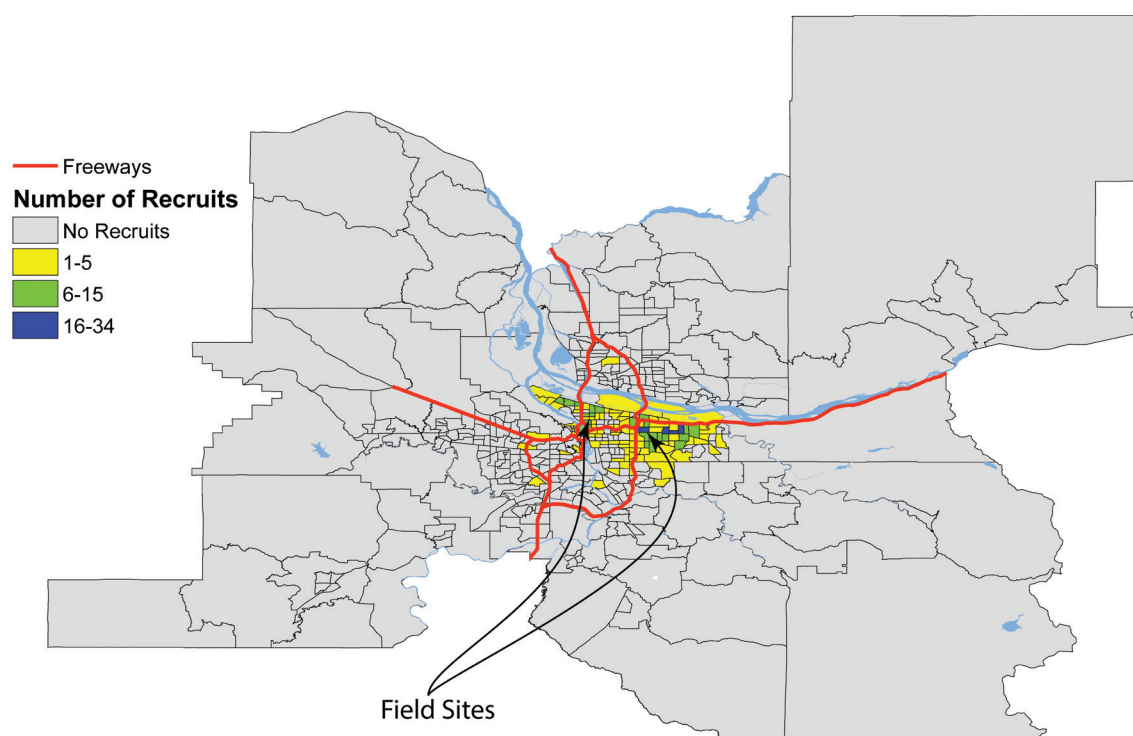


Figure 3: Total recruits by census tract, NHBS 2016





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