Comprehensive YRBS Methods Report

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Bureau of Epidemiology Services
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Background

The New York City Youth Risk Behavior Survey (YRBS) is conducted by the New York City Department of Health and Mental Hygiene (DOHMH) in collaboration with the New York City Department of Education (DOE). The YRBS is part of the National Centers for Disease Control and Prevention's (CDC) Youth Risk Behavior Surveillance System (YRBSS). The NYC survey follows the protocol developed by CDC, and the NYC questionnaire is adapted from the CDC-developed core instrument.

The YRBS has been conducted in odd-numbered years since 1997[1] to monitor priority health-risk behaviors that contribute to the leading causes of mortality, morbidity, and social problems among youth in New York City. The questionnaire measures tobacco, alcohol and drug use; behaviors that contribute to unintentional injury and violence; sexual behaviors; dietary behaviors; and physical activity. It also monitors the prevalence of obesity and asthma. The results are representative of public high school students in grades 9 through 12, excluding students in juvenile detention centers, and alternative and special education schools. English as a Second Language (ESL) and special education classes in eligible high schools are also excluded from the sample. From 1997 to 2001 the YRBS was conducted by the DOE. Since 2003, the DOHMH has worked in collaboration with the DOE in designing and implementing the survey.

Purpose

The New York City YRBS, like the national YRBS, is designed to determine the prevalence of health-risk behaviors among high school students; assess whether these behaviors increase, decrease, or stay the same over time; and examine the co-occurrence of health-risk behaviors.[2]

Questionnaire

To support trend analysis, the majority of questions on the New York City YRBS come from the CDC's State and Local core instrument. This instrument is provided to all state and local agencies planning to conduct the YRBS. The CDC protocol requires that two thirds of the core instrument questions must be used,[3] and no questionnaire may contain more than 99 questions. The number of questions in the NYC questionnaire has ranged from 87 to 99 (see Table 1). In addition to the CDC-developed items, the NYC YRBS contains questions designed to address needs unique to New York City. Justifications for new questions added to the survey are provided to DOHMH's Institutional Review Board.

[1] The survey was also conducted in 1993 and 1995, but the data are not used due to low response rates.
[2] Nancy D. Brener, et. al. 2013. "Methodology of the Youth Risk Behavior Surveillance System -- 2013" Morbidity and Mortality Weekly Report, Department of Health and Human Services, Centers for Disease Control and Promotion, 62(1), p.6. (https://www.cdc.gov/mmwr/pdf/rr/rr6201.pdf).
[3] The core questionnaire has contained 86 to 89 questions; a minimum of 58 questions must be used.

Table 1. Number of Questions in NYC YRBS Questionnaire

Year	Number of questions
1997	89
1999	87
2001	87
2003	87
2005	99
2007	99
2009	99
2011	99
2013	99
2015	99
2017	99

Sampling, Response Rates, and Weighting

From 1997 through 2001, the NYC YRBS was designed to provide data on a citywide level. In 2003, the survey was expanded to provide borough-level data; in 2005, it was further expanded to provide data for the three Neighborhood Health Action Center (Action Center) areas in the South Bronx, North and Central Brooklyn, and East and Central Harlem. The Action Centers (formerly known as District Public Health Offices (DPHOs)) were developed by the Health Department in areas with the highest morbidity and mortality in the city. The 2005 survey design was replicated in subsequent surveys.[4] Response rates over time for the YRBS are listed in Table 2, and Table 3 provides specific response rates by area for the 2017 survey.

Table 2. Response Rates, NYC YRBS 1997-2017

Year	Number of completed surveys (N)	School Response Rate (%)	Student Response Rate (%)	Overall Response Rate (%)	Supported Estimates
1997	2,014	100	78	78	Citywide
1999	1,580	96	74	70	Citywide
2001	1,616	96	77	74	Citywide
2003	7,390	97	67	65	Citywide, boroughs
2005	8,140	98	70	68	Citywide, boroughs, Action Centers
2007	9,080	98	70	68	Citywide, boroughs, Action Centers
2009	11,887	95	83	79	Citywide, boroughs, Action Centers
2011	11,570	93	79	73	Citywide, boroughs, Action Centers
2013	9,439	89	79	71	Citywide, boroughs, Action Centers
2015	8,522	90	78	70	Citywide, boroughs, Action Centers
2017	10,191	93	76	71	Citywide, boroughs, Action Centers

[4] Between 2005 and 2007, the catchment area for the Brooklyn Action Center was expanded to include East New York. Eligible schools in this area that were considered "non-Action Center" in 2005 were included in the Action Center sample frame beginning in 2007. As a result, data from the Brooklyn Action Center are not directly comparable between 2005 and subsequent years. For more information on the comparability of this data between 2005 and subsequent years, e-mail survey@health.nyc.gov.

Table 3. Response Rates (RR) for Boroughs and Action Centers, NYC YRBS 2017

Geographic Stratum	Number of Usable Completes	School RR %	Student RR %	Overall RR %
Bronx	2,148	92	72	66
Brooklyn	2,890	92	76	70
Manhattan	2,396	96	76	73
Queens	1,544	94	78	74
Staten Island	1,213	91	82	75
Bronx Action Center	932	91	65	59
Brooklyn Action Center	1,062	83	76	63
Manhattan Action Center	1,039	91	75	69

The NYC YRBS employs a stratified, two-stage cluster sample designed to produce a representative sample of students. In the first stage, schools, which are the Primary Sampling Units, are randomly selected with probability proportional to the schools' enrollment sizes. The schools are drawn from a list supplied by the DOE, which reports the most recent status of schools and student enrollment.

As noted above, from 1997 to 2001 schools were selected for citywide representation; since 2003 they have been selected to be representative of borough-level strata, as well as representative of the city overall. Beginning in 2005, the three Action Center areas have been oversampled to obtain representative samples of these sub-areas. The 2009 and 2011 YRBS also included an oversample of schools served by School-Based Health Centers (SBHC).[5]

In the second sampling stage, classrooms falling within a designated period of the school day (for example, second period) or a required class (such as English) are listed in a classroom-level sampling frame. English as a Second Language and special education classes are not eligible for inclusion in the sampling frame. Classes are then randomly selected from the sampling frame for each school. In each selected classroom, all students complete the questionnaire, other than those students who choose to opt-out (see below).

After the data are collected, a weighting factor is applied to each student record to adjust for nonresponse and for varying probabilities of selection. Weights are also determined by a post-stratification adjustment factor calculated with gender within grade and with race/ethnicity. Final weights are scaled to match the NYC public school student population and the proportion of students in each grade. For more information on weighting of the NYC YRBS data, please e-mail survey@health.nyc.gov.

[5] The SBHC oversampling was included to accommodate program evaluation needs and combine survey efforts. Requests for access to this data should be made at survey@health.nyc.gov.

Data-Collection Protocols

One week before the survey is administered, parents are sent a letter with an opt-out form that can be used if they decide against having their child participate in the YRBS. On the day of data collection, the survey is conducted in classrooms. Students are read a script that introduces the survey and then they complete the survey. When students are finished, they place their answer sheets in a manila envelope, and they receive cards or pamphlets listing phone numbers they can call if they would like to talk to anyone about issues raised in the survey. Survey procedures are designed to protect the anonymity of students, and student participation is voluntary. Study methods follow CDC guidelines, and are approved by the DOHMH and DOE Institutional Review Boards.

Data-Processing Procedures

Answer sheets are grouped together by classroom, and classroom-level and school-level information forms are affixed to them, which contain information about absenteeism rates, parental refusals, and student refusals. These packages are sent to CDC's contracted technical assistance provider, which scans the data and creates a data file for CDC. CDC edits the data for "out-of-range responses, logical inconsistencies, and missing data"[6] and returns the dataset to the technical assistance provider for weighting. The technical assistance provider then returns the weighted dataset to DOHMH.

Uses of the Data

YRBS data are used to:

- Determine which health risk-behaviors and conditions are improving, staying the same, or in need of improvement;
- Write grants and program proposals;
- Develop public health programs;
- Evaluate public health programs;
- Set priorities for programs;
- Train staff at DOHMH and DOE;
- Educate community-based groups and local professionals; and
- Create data-focused publications, such as Vital Signs and EPI Data Briefs. For more information, visit the DOHMH's Data Publication page.

[6] Nancy D. Brener, et. al. 2013. "Methodology of the Youth Risk Behavior Surveillance System -- 2013" Morbidity and Mortality Weekly Report, Department of Health and Human Services, Centers for Disease Control and Promotion, 62(1), p.13. (https://www.cdc.gov/mmwr/pdf/rr/rr6201.pdf)