

SUPPORTING STATEMENT FOR THE NATIONAL SURVEY OF THE USE OF BOOSTER SEATS

OMB Clearance Number: [New 2127-0644](#)

JUSTIFICATION

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

1. Describe the potential respondent universe and any sampling or other respondent selection methods to be used.

The purpose of the survey is to gather information on the restraint use, and in particular, the use of booster seats, among children ages 4 to 8. The survey will visit gas stations, recreation centers, and five specific fast food restaurants (McDonald's, Taco Bell, Burger King, Wendy's, and Kentucky Fried Chicken). Data collectors will approach as many vehicles as possible that appear to have at least one child occupant under the age of 13 in order to allow for data collector visual misestimation of ages and try to ensure that as many children ages 4 to 8 are captured.

In this sense, the potential respondent universe consists of all child motorists ages 4 to 8 who frequent gas stations, recreation centers, and the five specific fast food restaurants (McDonald's, Taco Bell, Burger King, Wendy's, and Kentucky Fried Chicken).

These site types (gas stations, recreation centers, and the five fast food restaurants) were chosen because they are frequented by child motorists and because their parking lots are usually sufficiently small that data collectors can likely approach vehicles as they are parking, before child restraints have been unfastened.

Data collectors will approach as many motorists as possible who appear to have at least one child under the age of 13 in their vehicle for possible participation in the survey.

2. Describe the collection of information procedures.

Following are information on the probabilistic sample design, information collected, and other statistical procedures that will be used by the National Survey of the Use of Booster Seats.

Sample Design

Selection of PSUs

Twenty-four Primary Sampling Units (PSUs) were selected from the PSUs utilized by the National Occupant Protection Use Survey (NOPUS).

Each NOPUS PSU consists of a county or group of counties, and there are 50 NOPUS PSUs in all. The NOPUS PSUs were selected as stratified PPS (probability proportional to size) sample, using Vehicle Miles Traveled as the measure of size. The strata used in this selection were based on four geographic regions (Northeast, Midwest, South, and West), and whether or not the county or group of counties comprises a Metropolitan Statistical Area. For more information on the selection of the NOPUS PSUs, please see Chapter 5 of the attached Technical Report.

The NOPUS PSUs were utilized to select the PSUs for the National Survey of the Use of Booster Seats because they provide a set of PSUs selected to reflect traffic volume and because using NOPUS PSUs will allow us to directly compare restraint use results between the two surveys (the NOPUS and the National Survey of the Use of Booster Seats).

The NOPUS PSUs were sorted by Vehicle Miles Traveled, and a systematic sample of 24 PSUs was selected without replacement from this sorted list.

Selection of Sites within PSUs

Within each selected PSU, 10 sites comprising gas stations, recreation centers, and five specific fast food restaurants (McDonald's, Taco Bell, Burger King, Wendy's, and Kentucky Fried Chicken) were selected as a stratified simple random sample without replacement from 3 strata: gas stations, recreation centers, and fast food restaurants. A sampling frame of potential sites was formed using an internet search of all gas stations, recreation centers, and fast food restaurants from the five specified restaurant chains in the selected PSUs. Fast food restaurants located in a shopping mall were eliminated from the sampling frame because the parking lot for these sites could be too large to capture vehicles as they park. The allocation of the sample size of 10 within each PSU was allocated proportionally to the 3 site-type strata based on the number of sites of each type located in the PSU.

Regarding the internet-based search for sites, we are not aware of any studies on the accuracy and reliability of internet-based searches of establishments, neither for our particular site types of fast food restaurants, recreation centers, and gas stations, nor for the search of establishments in general. However the Internet does appear to have a wealth of information in this regard and the information appears to be reasonably accurate for our limited use.

Thus there were a total of 240 sites selected.

The site types used by the National Survey of the Use of Booster Seats (gas stations, recreation centers, and the five fast food restaurants) were chosen because they are frequented by child motorists and because their parking lots are sufficiently small that data collectors can likely approach vehicles as they are parking, before child restraints have been unfastened.

Data Collection Schedule

Data collectors will visit each site for approximately 4 hours.

The data collection schedule was set to take advantage of time periods during which child motorists are more likely to visit the sites. Fast food site visits will only be scheduled between the hours of 10 am and 2 pm on weekdays and 10 am – 6 pm on weekends. Recreation centers will only be visited between 10 am and 4 pm on weekdays and weekends. Gas stations will only be visited during morning and evening rush hours (7-9 am and 4-6 pm) on weekdays, and between 10 am and 6 pm on weekends. The specific schedule of site visits, in terms of which team will visit which site at which time, will be set to yield efficient collection of data given the site locations.

Estimated Yield

We estimate that based on the number of hours of data collection, data collectors will approach approximately 4,800 vehicles.

Information Collected

If an adult in the approached vehicle agrees to participate in the survey, data collectors will ask the adult for the following information:

- Age of each occupant
- Children's heights
- Children's weights
- How many hours in the last week has each child spent in the vehicle?
- How many times in the last week has each child been to this type of site (e.g. gas stations)?

In addition, data collectors will collect the following information by observation only, and not by interview:

- Date
- Time
- Survey site
- Site type (e.g. gas station, fast food restaurant, etc)
- Vehicle type
- Seating position of each occupant
- Restraint use for each occupant, specifying the types of child restraints used
- Gender of each occupant
- Race of each occupant

Data Collection Form

The data collection form to be used by the survey is attached.

Data collectors for this survey will fill out page 1 of the form (site type, weather, etc) when they arrive at each data collection site. Data collectors will then fill out one copy of pages 2 and 3 of the form for each vehicle whose occupants agree to participate in the survey.

On page 1 of the form, the PSU and site numbers are identification numbers for the survey site assigned by the survey. The "booklet" consists of the entire package of forms

filled out by the data collector on a given day. For information on "misses and refusals", please see the explanation below explaining page 4 of the form.

Data collectors will recite the text on page 2 of the form "Hi, my name is ____ ..." to each potential respondent to ensure them that their participation is voluntary and that any information they give will be kept confidential.

For motorists who agree to participate, data collectors will interview an adult motorist in a vehicle containing children for answers to the questions on the form, and fill out the form's information on restraint use based on observing the children in the vehicle. One member of each team of two data collectors will conduct and record the interview data and the other data collector will observe and record the observed data on restraint use. The part of the form with the pictures of signs from McDonald's, Taco Bell, etc is where data collectors will record information from the last question - on the number of times the motorists have visited each of those establishments in the past week.

Information on page 2 on the vehicle type, time, and vehicle number will be filled out by the data collector. (S/he will not ask the motorist for this information.) The vehicle number simply reflects the number of vehicles the data collector has observed so far, i.e. the first vehicle, second vehicle, etc. It does not reflect any identifying information for the vehicle, such as the Vehicle Identification Number or license plate.

Data collectors will keep track of the number of vehicles that they missed and the number of vehicles whose occupants declined to participate in the survey and record these counts on page 4 of the form when they leave the site.

Data collectors will receive extensive training in protocols for interviewing motorists and observing restraint use in a manner that is professional and as unobtrusive as possible.

Statistical Editing, Imputation, Estimation, and Variance Estimation

Simple range edits will be performed on the data to improve data quality. For instance the data will be edited to ensure that children's ages fall between 0 and 18 years. Data that fall out of range will be treated as missing.

We do not expect many missing values in the observed portion of the data (both the site information on page 1 of the data collection form and the observed motorist data on pages 2-3) because the data collectors will be well trained and they should have adequate time to record site information and restraint use.

Regarding the interview data, we do not expect many missing values for the ages of children, as the interviewed adult motorist will most likely know the ages. We will not impute for missing values of the remaining interview variables (children's weights and heights and time spent in the vehicle or at the site type) as there would not seem to be a good basis for forming reasonable imputed values.

Restraint use will be estimated by $(\sum w(i) R(i)) / (\sum w(i) T(i))$ where i runs over the observation sites; $w(i)$ is the inverse of the selection probability for site i multiplied by the ratio of the number of vehicles estimated to have frequented the site during the observation period (obtained from the counts of unapproached vehicles and vehicles

approached but not participating) to the number of responding vehicles; $R(i)$ is the number of restrained children observed at site i , and $T(i)$ is the total number of children observed at site i . The adjustment ratio in the $w(i)$ term reflects the only adjustment that will be made for vehicles at the sites that do not participate in the survey, as NHTSA does not believe there is reliable information with which to adjust for possible bias incurred by not having data on the nonparticipating vehicles.

The estimates generated by this formula will be reported as estimates of restraint use by children (of the age range in question) at gas stations, recreation centers, and the five specific fast food restaurants. NHTSA does not feel that these estimates can be extrapolated to estimates reflecting all child motorists (i.e. to account for children who do not frequent these site types).

Variance estimates will be computed using WesVar, which utilizes a jackknife variance methodology.

3. Describe the methods used to maximize response rates and to deal with issues of nonresponse.

The data collectors will offer small incentives of monetary value, such as coupons, to maximize response rates. NHTSA has found such small incentives to be effective.

We do not expect many missing values in the observed portion of the data (both the site information on page 1 of the data collection form and the observed motorist data on pages 2-3) because the data collectors will be well trained and they should have adequate time to record site information and restraint use.

Regarding the interview data, we do not expect many missing values for the ages of children, as the interviewed adult motorist will most likely know the ages. We will not impute for missing values of the remaining interview variables (children's weights and heights and time spent in the vehicle or at the site type) as there would not seem to be a good basis for forming reasonable imputed values.

Data collectors for the National Survey of the Use of Booster Seats will undergo extensive training in order to minimize errors that could arise from their categorizing or recording data incorrectly.

NHTSA does not believe that there is reliable information with which to adjust the survey results to account for inaccurate responses given by motorists, motorists who choose not to participate in the survey, motorists who do not frequent the site types, or motorists who frequent the site types outside of the observation period. The Agency's published report will clearly state that the results are based on motorists who visit the site types and voluntarily chose to participate in the survey.

4. Describe any tests of procedures or methods to be undertaken.

Before conducting the national survey, NHTSA will conduct a pilot test of the data collection procedures at businesses in the Washington DC vicinity. The test will examine the following issues: challenges in obtaining cooperation from gas stations, the five fast food restaurant chains (McDonald's, Burger King, Taco Bell, Wendy's, and Kentucky Fried Chicken), and recreation centers, and the types of incentives we need to offer to get their cooperation; the level of response rate we get from motorists and the kinds of incentives that are useful to get their cooperation; the numbers of children we see (especially 4-7 year olds) at the various types of sites; where we should approach vehicles in fast food lines, gas stations, etc in order to catch children before they unbuckle or unfasten safety belts or harnesses; and other problems or challenges we encounter during data collection that would be useful for conducting the survey.

5. Provide the name and telephone number of individuals consulted on statistical aspects of the design and the name of the Agency unit, contractor(s), grantee(s), or other person(s) who will actually collect and/or analyze the information for the Agency.

This survey was designed and will be conducted under Federal contract with Westat, Inc. The Contracting Officer's Technical Representative is Timothy M. Pickrell and can be reached at (202) 366-2903. The Program Manager at Westat, Inc. is Fran Bents, (240) 314-7557.