Multiple Year
2015–2017

Behavioral Risk Factor Surveillance System

Child
Asthma Call-back Survey

Analysis Guidance
Supplement

National Asthma Control Program

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Behavioral Risk Factor Surveillance System, Child Asthma Call-back Survey (ACBS)

Analysis Guidance Supplement

The Child Asthma Call-back Survey (ACBS) is a follow-up survey to the Behavioral Risk Factor Surveillance System (BRFSS) for children ever diagnosed with asthma. Two modules on the BRFSS survey must be completed, the Random Child Selection and the Childhood Asthma Prevalence Modules, for eligibility for the follow-up Child Asthma Call-back Survey. If both a randomly selected child and adult have been diagnosed with asthma, then only one of them is eligible for the Asthma Call-back Survey, via a (50/50 split).

An ACBS child file must have a minimum of 75 completed child records in order to create a reliable single year child weight. For states with sufficient sample sizes (≥75), single year data with weights are available at https://www.cdc.gov/brfss/acbs/index.htm. To get enough sample size for analysis, the child ACBS for years 2015 to 2017 have been combined in a data file and publicly released. The number of responses for each grantee state by survey year is represented in Table A below. Only states with all three years of data 2015, 2016, and 2017 are included in the combined dataset, with the exception of Florida (collected in 2016 and 2017 only). The ACBS History and Analysis Guidance documents could be found on the BRFSS ACBS website (https://www.cdc.gov/brfss/acbs/index.htm). The child demographic information can be found in the BRFSS Radom Child Selection Module and the variables are included in the 2017 BRFSS data set (https://www.cdc.gov/brfss/annual_data/annual_2017.html). Further details highlighted in this supplemental document are intended to assist data users in analyzing the combined 2015–2017 Child ACBS dataset.

The annual child ACBS weighting process is based on the BRFSS final child weight for the randomly selected child (_CLLCPWT). The sum of the BRFSS child weights(_CLLCPWT) for records reporting children with lifetime asthma is an estimate of the total population of children in the state with lifetime asthma. For the ACBS weight, the BRFSS child weight for the randomly selected child is adjusted for loss to sample between the BRFSS interview and the ACBS interview. After adjusting for sample loss, demographic post stratification group (age/sex/race) adjustments are made to account for differential non-response. As an end result of the adjustment for sample loss and the post stratification adjustment, for each state the sum of the ACBS final weights for all ACBS child records is equal to the estimated total state population of children with lifetime asthma in the state. The final weight for multiple years (2015–2017) of ACBS data is _CHILDWT_M_YEARS.

The multiple years of data were adjusted to represent an average individual year lifetime asthma population for each state. The following is a summary of weighting multiple child ACBS data:

1. Three years BRFSS asthma population total: Sum of BRFSS Final Child Weight (_CLLCPWT) for CASTHDX2=1 (Yes for ever-diagnosed asthma)
2. Computed the yearly proportion ratio, applied the yearly proportion adjustment on BRFSS Final Child Weight (_CLLCPWT) before ACBS post – stratification.
3. Yearly Proportion Ratio:

   Proportion_20XX_Ratio = 20XX child asthma population

   / Sum of child BRFSS asthma population total from 2015 to 2017

4. Adjustment for ACBS sample loss (refused ACBS / lost to follow-up) based on agree-to-be - called-back rate
5. Stratification for non-response: forces the sum of final weight (_CHILDWT_M_YEARS) for each demographic cell (age/sex/race) from the ACBS data to equal to the Sum of BRFSS final weight from each BRFSS " Yes" Lifetime Asthma respondent for each (age/sex/race) cell

A. Estimation procedures for statistical analysis

1. Record Weights

i. The unweighted data represent the number of actual responses. The final child weight for multiple combined years 2015–2017 ACBS dataset is **_CHILDWT_M_YEARS**.

2. Calculated Variables

i. The data for BRFSS variables are included with the Child ACBS dataset. A new variable for child race (**CHILD_RACE_M_YEARS**) has been calculated for the combined child dataset to account for differences in the race variable between individual years. A new variable for age (**CHILD_AGE_YEAR**) with imputed missing values has also been created for the combined dataset to address variable differences in child age between individual years. For reported child age, please use **MNTHDIFF** (child age in months).

3. Variances

i. The Child ACBS uses a complex survey design, and therefore statistical software such as SAS, SUDAAN, Epi Info, SPSS and STATA, or other analytical packages must be used that can account for complex sample designs. Accordingly, the statistical code must specify "with replacement" (**WR**) and include stratum variable (**_STSTR**), primary sampling unit (**_PSU**), sample design survey year (**SURVEY_YEAR**), and record weight (**_CHILDWT_M_YEARS**). See sample code in Section B.

B. Sample code

```
/* SUDAAN Code for 3 Age Group */
PROC CROSSTAB DATA=ACBS_CHILD_12_14 DESIGN=WR;
        NEST SURVEY_YEAR  _STSTR  _PSU / NOSORTCK MISSUNIT PSULEV=3;
        WEIGHT _CHILDWT_M_YEARS;
        CLASS CAGE3CAT MGT_CLAS_CAT;
        TABLES CAGE3CAT*MGT_CLAS_CAT;
        TEST CHISQ;
OUTPUT / TABLECELL=DEFAULT FILENAME=CAGE3CAT_GROUP REPLACE;
RUN;

/* SAS Code for 3 age Group */
PROC SURVEYFREQ DATA =ACBS_CHILD_12_14 NOMCAR;
        STRATA  SURVEY_YEAR  _STSTR  ;
        CLUSTER  _PSU ;
        WEIGHT   _CHILDWT_M_YEARS;
        TABLES  CAGE3CAT * MGT_CLAS_CAT  / ROW CL CHISQ ;
Run;
```

Table A. Child Asthma Call-back Sample Size by Year and State

States*	2015	2016	2017	Sample size
California	72	63	42	177
Connecticut	100	76	74	250
Florida**	-	236	154	390
Georgia	55	58	52	165
Hawaii	42	44	56	142
Indiana	42	68	95	205
Kansas	166	66	137	369
Maine	55	90	81	226
Michigan	90	110	83	283
Minnesota	142	125	95	362
Missouri	28	32	46	106
Montana	29	26	36	91
Nebraska	118	95	92	305
New Jersey	147	70	120	337
New Mexico	63	63	35	161
New York	41	76	37	154
Ohio	75	85	74	234
Oregon	46	33	30	109
Pennsylvania	47	53	39	139
Rhode Island	39	26	41	106
Utah	119	91	92	302
Vermont	60	40	40	140
Wisconsin	44	27	37	108
Puerto Rico	93	76	53	222
Total	**1713**	**1729**	**1641**	**5083**

Notes:

*Only states that have records for all three years 2015, 2016, and 2017 are included

**Florida has data for 2016 and 2017 only