Testing of the Questions on Second Hand Smoke for the National Health and Nutrition Examination Survey (NHANES):
Results of Interviews Conducted 09/18/12-01/30/13

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I. Introduction

This report summarizes the findings from a research project designed to evaluate the questions on second hand smoke for the National Health and Nutrition Examination Survey (NHANES). This project was part of a larger question evaluation project that tested four different sets of health related survey questions. In addition to testing questions on second hand smoke, this project also tested questions on child disability for the Washington Group, the death rate/life expectancy for the Federal Statistical System (FSS) Public Opinion Survey, and questions on health insurance for use in the American Community Survey. This report presents findings from the evaluation of questions on second hand smoke for NHANES. See Appendix A for a copy of the questionnaire.

This evaluation is based on 25 cognitive interviews that were conducted by the Questionnaire Design Research Laboratory (QDRL) at the National Center for Health Statistics (NCHS). Cognitive interviewing is a qualitative question evaluation method used to evaluate the validity of survey questions (Willis 2005; Miller 2011). The main goals of the project were to: 1) assess respondents' interpretation of the survey questions and 2) identify any potential question response problems that could lead to response error in the survey data.

The following report is organized into four sections. Following this initial introduction, section two discusses the methods used in this question evaluation study, including the sample selection, sample characteristics, and interviewing procedure. Section two also summarizes the cognitive interviewing methodology and describes how data analysis was conducted. Section three provides a summary overview of the findings. Section four presents a detailed question-by-question review of the findings.

II. Methodology

Sample

A team of two researchers conducted interviews with 25 individuals who met at least one of the recruitment categories we sought to fill. We recruited a purposive sample of respondents using newspaper advertisements, flyers, word-of-mouth, or by contacting participants from past QDRL projects. We recruited respondents from three different groups: 1) parents or guardians of children ages 2 to 17 who may have difficulties in the following areas: seeing, hearing, walking, learning, and/or behavior, 2) adults who do or do not have awareness of or trust in federal statistics on the death rate/life expectancy in the U.S., and 3) smokers. When possible, we tried to recruit respondents who fit more than one of these categories, but because this was not always possible, some only fell under one of these groups. Respondent demographics for the full sample are shown in Table 1. Our sample was mostly female, non-Hispanic black, and had completed some schooling beyond high school.

Table 1: Demographic Profile

		N=25	Total (%)
Gender			
	Female	17	68%
	Male	8	32%
Age			
	18-29	3	12%
	30-39	9	36%
	40-49	4	16%
	50-59	9	36%
Hispanic/Non-Hispanic			
	Hispanic	2	8%
	Non-Hispanic	23	92%
Race/Ethnicity			
	Black	20	80%
	White	4	16%
	Other	1	4%
Education			
	Less than high school	1	4%
	High school diploma/GED	8	32%
	Some college	6	24%
	Associate's Degree	2	8%
	Bachelor's Degree	3	12%
	Master's Degree	5	20%
Income			
	$10,000 – $20,000	13	52%
	$20-000 – $30,000	5	20%
	$30,000 or more	7	28%
Marital Status			

	Never Married	11	44%
	Currently Married	7	28%
	Separated	1	4%
	Divorced	5	20%
	Widowed	1	4%

Interviewing Procedures

We evaluated questions using cognitive interviewing. This is a qualitative question evaluation method used to uncover potential response errors that can occur during the question response process, errors that may not be immediately obvious. These include problems with comprehension, recall, constructing responses, and the mapping of responses onto the survey question (Willis 2005; Tourangeau, Rips, and Rasinksi 2000).

During the interviews, retrospective, intensive verbal probing was used to collect response process data. Given that four different sets of health related questions were tested in this project, respondents were retrospectively probed after each set of questions were administered. First, respondents were administered all questions on child disability, and then interviewers returned to each question and probed retrospectively. After thoroughly probing on the questions related to child disability, interviewers moved to the second set of questions on the death rate/life expectancy for the Federal Statistical System (FSS) Public Opinion Survey. After administering the second set of questions, interviewers retrospectively probed on each question pertaining to the death rate/life expectancy. Next, interviewers administered the third set of questions on health insurance for use in the American Community Survey and retrospectively probed on each of these. Finally, interviewers administered the questions on second hand smoke for the National Health and Nutrition Examination Survey (NHANES) and retrospectively probed on this fourth and final set of questions. For each set of questions, retrospective probes included such things as: Why did you answer the way that you did? How did you arrive at your response? Can you tell me more about that? Can you clarify what you mean? Of the 25 interviews, 21 were conducted in the QDRL at NCHS, and four were conducted off-site at respondents' homes. The 21 interviews conducted in the QDRL were video recorded and the four interviews conducted off-site were audio recorded. Video and audio recordings and interview summaries were used to conduct data analysis. All interviews were conducted face-to-face. Interviews typically lasted 60 minutes and respondents were remunerated $50 for their time.

Data Analysis

Data from this evaluation were analyzed using the constant comparative method of analysis, in which analysts continually compared data findings to original data (Lincoln and Guba 1985; Strauss and Corbin 1990; Creswell 1998). This involved a process of data synthesis and reduction (Strauss and Corbin 1990; Suter 2012). Synthesis and reduction were carried out in five incremental yet iterative steps: analysts conducted interviews, produced summaries, compared across respondents, compared across groups, and reached conclusions (Miller, Willson, Chepp, and Padilla, *forthcoming*). Specifically, once interviews were conducted,

analysts synthesized interview data into summaries, detailing how and why each respondent interpreted the question and formulated their answers. Next, analysts compared summaries across respondents, identifying common themes. Once themes were identified, analysts compared themes across subgroups, identifying ways in which different groups of respondents processed questions differently depending on their differing experiences and socio-cultural backgrounds. Finally, analysts made conclusions, determining and explaining how a question performed as it functioned within the context of respondents' various experiences and socio-cultural locations. With each analytic step in this process, data was reduced and systematically extracted in order to produce a theoretical summary detailing a question's performance. As such, these different analytic steps represent both data reduction and a movement toward larger conceptual themes. Analysts used Q-Notes, an analysis software tool developed by NCHS, to facilitate data organization and analysis.

III. Overall Findings

Analysis of the data revealed four overall patterns that influenced respondents' answers to the questions on second hand smoke:

Local laws and regulations: This cognitive testing project took place in the state of Maryland. In 2008, Maryland (along with the neighboring District of Columbia in 2007) enacted a statewide smoking ban in all enclosed public places, including bars and restaurants. This state policy shaped the data that was collected. Given the ban on smoking indoors throughout the region, respondents encountered smoking in very few public places such as bars, restaurants, and stores. Smoking was more often reported in private spaces such as homes and cars. Many respondents demonstrated knowledge of the smoking ban and cited it in their narratives. For example, when asked if they had encountered smoking in restaurants or bars, several respondents supported their answers by noting that it is illegal to smoke in these places.

Smoking context of the survey: For many respondents, knowledge about the topic of the survey—i.e., smoking—informed the question response process. Potential for response error occurred when respondents focused on the smoking context of the overall survey when responding. For example, when asked, *During the last 7 days, did {you/your child} spend time in a home other than {your/his/her} own?*, several respondents only considered homes where smoking takes place, rather than all homes they had visited in the previous week. Similarly, when considering public places they had visited in the past seven days, some respondents relied on their knowledge of smoking bans to formulate their answers. These respondents answered "no" because they had not been in any bars, restaurants, or other indoor areas *with smoking*. Potential response error also occurred when respondents, anticipating the second question in a set, did not answer the first question in a set. For example, this occurred for respondents who answered "no" to the question, *"During the last 7 days, did {you/your child} spend time in a restaurant?"* when, in fact, they had been in restaurants but not ones with smoking. Instead of answering the question about whether they had spent time in a restaurant, these respondents jumped ahead to answer the next question (i.e. whether there had been smoking in the restaurant).

Timeframe (7 days) and activity frequency: Placing their answers within the specified time frame was not difficult for respondents who either frequently or never performed the activity cited in question. For example, respondents who smoke every day were certain that they had smoked within the last seven days. Similarly, those who don't smoke at all were certain they had not smoked within the last seven days. Respondents had a more difficult time answering with certainty about activities that were infrequent or irregular. For example, respondents who smoked occasionally or at unpredictable times had a more difficultly answering the question about whether they had smoked in the last 7 days. Similarly, respondents who occasionally eat at restaurants had a harder time answering with confidence than those who frequently eat out at restaurants or those who never eat out at restaurants.

Respondents who had engaged in activities within the upper limit of this timeframe, such as the last seven to nine days, had some difficulty placing their activity using this timeframe. For example, one respondent answered "yes" to having been in a restaurant in the last seven days but later indicated in probing that she was unsure whether she had been in a restaurant in the previous seven days; she was certain, however, she had been to a restaurant within the previous eight or nine days.

Proxy vs. self-report: In general, respondents had an easier time answering questions when responding on behalf of themselves rather than answering as proxies for their children. Respondents answering for themselves were able to draw on their own experiences, and were generally certain of their own activities. In contrast, proxy respondents were not always with their children and were therefore not always certain what had occurred in their absence. For example, one respondent replied "don't know" to the question, *While {you were/your child was} in the home other than {your/his/her} own, did someone else smoke cigarettes or other tobacco products indoors?* because she was not always at the houses where her daughter had visited and did not know if smoking had taken place in those homes.

Often, respondents who served as proxies for their children based their answers about their children's exposure to second hand smoke on their knowledge of "no smoking" policies, rather than on their firsthand experience. For example, despite her absence, one respondent answering as a proxy for her son indicated that she was certain her son was not exposed to second hand smoke while sleeping at her parent's house because they "don't allow smoking in their house." Other respondents laughed at the idea that there might have been smoking on the school bus or at school because they felt it was obvious that smoking bans would prevent that from occurring. Proxy respondents who based their answers on knowledge of "no smoking" policies felt quite confident in their responses. However, since they were not present, their answers may not be as reliable as those who answered based on what they had witnessed.

IV. Question-by-Question Review

This section of the report presents findings from the question-by-question analysis conducted on all survey questions that were evaluated. This evaluation includes descriptions of how respondents interpreted question intent and explanations of why and how questions presented

problems for respondents. Nine adults provided self-reports of their answers to survey questions while 16 adults answered as proxies for children between the ages of 2 and 11.

MODULE ON SECOND HAND SMOKE

During the past 7 days, did you smoke cigarettes or any other tobacco products?

Sixteen respondents answered "yes" to this question and nine answered "no." Respondents fell into one of three categories: (1) regular or everyday smokers, (2) non-smokers, or (3) occasional smokers. Occasional smokers are those who do not smoke every day, smoke only in social settings, and/or are trying to quit or "cut back."

For regular smokers, non-smokers, and occasional smokers who smoke at predictable times, this question was easy to answer. However, for occasional smokers who smoke at unpredictable times, the question posed more difficulty. Of the 25 respondents, four respondents were occasional smokers. Three occasional smokers reported "yes" to smoking cigarettes in the last seven days and one reported "no." The three respondents who reported "yes" could all specifically recall their last cigarette; all fell within the 7-day time frame. For occasional smokers who smoked at predictable times, such as with certain friends or when drinking alcohol, it was easy to remember when they smoked their last cigarette.

Unlike the three occasional smokers who could all explicitly recall their last cigarette, the occasional smoker who reported "no" could not recall the last time she smoked a cigarette. She said she did not smoke in the last week, so she "probably" smoked last weekend. She confirmed that it was more than seven days ago. For this respondent, there's no regularity to her smoking, as she tries to only smoke when her son is not around. Because of this, it's not easy to immediately recall her last cigarette. She reports smoking a pack of cigarettes every 1 ½ weeks. While we cannot be certain as to whether or not she smoked in the last seven days, the fact that this respondent smokes 20 cigarettes every 10-11 days suggests that she probably had a cigarette in the last seven days, unless she smokes a lot in one sitting.

SMG.NEW3: During the Last 7 days, were you working at a job or business outside of the home?

Two respondents answered "no" to this question and seven answered "yes." Because this question asked about employment, it was intended for self-reporting adults; however, the question was also mistakenly administered to one adult proxy. This respondent was also included in the analysis.

Respondents interpreted the phrase "working at a job or business outside of your home" in different ways:

Employment not in the home: Respondents who answered "yes" interpreted this as a question about whether they were employed at a place of business that was at a location other than their homes. Respondents supported their answers by providing the name and location of their employers.

Employment status: The two respondents who answered "no" said they are unemployed. These respondents interpreted the question as having to do with their employment status. They did not address the phrase "outside of your home" since it was irrelevant to their employment context.

"**Outside":** One respondent understood the question to refer to employment that occurs outdoors. This respondent clarified that she sometimes works inside an office and at other times works "outside, in the field." Since this respondent is employed at a location that is not in her home, there was no response error. However, possible response error could occur for respondents who interpret the phrase "outside the home" to only include jobs that are located in an outdoor setting.

SMQ.NEW4: While you were working at a job or business outside of the home, did someone else smoke cigarettes or other tobacco products indoors?

Three respondents answered "no" and two answered "yes." Because this question asked about employment, it was intended for self-reporting adults; however, the question was also mistakenly administered to one adult proxy. This respondent was also included in analysis.

Although there is not enough data to make definitive conclusions, several observations can be made. Most respondents interpreted this as a question about smoking at their place of employment. Those who answered "no" supported their answers with observations such as, "No one smokes there."

One of the respondents who answered "yes" responded based on his exposure to smoke in the workplace. At his place of work, the designated smoking area is a covered structure that is connected to the workplace. Although smokers do not smoke inside the actual workplace, their smoke comes inside. The respondent observed, "That whole level smells like smoke." Therefore, the respondent reported being exposed to smoke indoors while at work.

Response error was seen with one of the respondents who answered "yes." During probing, she indicated that she based her answer on an incident of someone smoking indoors in a business that she visited during her own personal time. The incident did not occur at her job or while she was working. This respondent interpreted the question to be about someone smoking at a place where people are employed (i.e. a business) rather than her own place of employment.

SMQ.NEW5: During the last 7 days, did {you/your child} spend time in a restaurant?

Twelve respondents answered "yes" to this question and 13 answered "no." Of those who answered "yes," seven served as proxies for their children and five answered on behalf of

themselves. Nine of those who answered "no" served as proxies for their children while four answered for themselves (see Table 2).

Table 2: Frequency Table for SMQ.NEW5 (n=25)

	No	Yes	Don't Know
Adult (self-report)	4	5	0
Child (proxy report)	9	7	0

Respondents considered two types of restaurants when answering this question. Traditional sit-down restaurants unambiguously fit the definition of "restaurant" for respondents. Many respondents gave examples of chain restaurants such as "Outback Steakhouse" and "Olive Garden." Fast-food restaurants and mall food courts were more ambiguous. Some respondents indicated that eating inside of a fast-food restaurant fit the definition of "spending time in a restaurant," but they made the distinction that carrying food out from a fast-food restaurant or going through a drive-thru did not fit the definition. For example, one respondent answered "no" and said, "No. Not in person. Drive-thru? Yes." In other words, this respondent does not count going through a fast-food drive-thru as "spending time in a restaurant." Another respondent was unsure if fast-food restaurants should be included in the definition at all, including eating inside of the fast-food restaurant. One respondent who initially answered "no" changed her response to "yes" during probing after she decided that eating in a mall food court constituted "spending time in a restaurant." In this case, the respondent changed her answer to fit her revised definition of what constitutes a restaurant.

Most respondents were able to easily place their answers within or outside the specified timeframe of seven days. However, respondents who had eaten at a restaurant within the upper limit of this timeframe, such as the last seven to nine days, had some difficulty placing their activity using this timeframe. For example, one respondent answered "yes" but indicated in probing that she was unsure whether she had been in a restaurant in the previous seven days, but was certain that it was within the previous eight or nine days.

Respondents that were proxy-reporting for their children had more difficulty answering this question than did self-reporting respondents, as proxies had to consider whether their children had been to a restaurant with anyone else. For example, one respondent said, "I was trying to think was he with his dad, which he hasn't been, because his dad has been pretty busy." Proxies also encountered difficulty when determining whether their child had been with them when they ate a restaurant. One respondent noted, "I went to a restaurant, but it wasn't with my son. That was always throwing me off too." This respondent was certain that she had been to a restaurant but had to think harder to remember whether her son had been with her or not.

SMQ.NEW6: While {you were/your child was} in a restaurant, did someone else smoke cigarettes or other tobacco products indoors?

This question was administered to 12 respondents, all of whom answered "no." Six of these respondents were self-reporting and six answered as proxies for their children (see Table 3).

Table 3: Frequency Table for SMQ.NEW6 (n=12)

	No	Yes	Don't Know
Adult (self-report)	6	0	0
Child (proxy report)	6	0	0

Many respondents cited the statewide ban on smoking to support their certainty that neither they nor their children had been in a restaurant where smoking occurred.

SMQ.NEW7: During the last 7 days, did you spend time in a bar?

This question was administered to nine adult respondents. Eight indicated that they had not been in a bar in the previous seven days while one said that he had been in a bar. Several respondents indicated that they avoid bars. For example, one respondent said that he never goes into bars because he is a recovering alcoholic. Although no difficulties were observed with responses to this question, there may be too little data for a complete analysis.

SMQ.NEW8: While you were in a bar, did someone else smoke cigarettes or other tobacco products indoors?

Because this question was only administered to the one respondent who answered "yes" to the previous question, there was not enough data to make any conclusions. The single respondent was able to answer the question with confidence and noted that local laws prohibit smoking in public places such as bars.

SMQ.NEW9: During the last 7 days, did {you/your child] ride in a car or motor vehicle?

Twenty-three respondents answered "yes" to this question and two answered "no." Of those who answered "yes," 14 served as proxies for their children and nine answered on behalf of themselves. The two who answered "no" served as proxies for their children (see Table 4).

Table 4: Frequency Table for SMQ.NEW9 (n=25)

	No	Yes	Don't Know
Adult (self-report)	0	9	0
Child (proxy report)	2	14	0

Most respondents were able to answer the question without difficulty. Response error was seen for one respondent who indicated that her child had not ridden in a car or motor vehicle. After responding "no," she asked, "And when you say motor vehicle, you're talking about cars, not

trains? Not buses?" Further probing revealed that her son had been on a bus in the last seven days. When answering, she was not thinking of vehicles driven by other people.

Most respondents indicated that they or their children had ridden in a car (rather than a bus or train). The driver of the car was usually the respondent, but friends and family members were also mentioned. Some respondents or their children had ridden school buses or public transportation within the last seven days. Respondents serving as proxies for their children were sure of their answers because either they had been the driver of the car their child had ridden in or they had seen their child in the car with another driver.

SMQ.NEW10: While {you were/your child was] riding in a car or motor vehicle, did someone else smoke cigarettes or other tobacco products?

Nineteen respondents answered "no" to this question while four respondents answered "yes." Of those who answered "yes," one served as a proxy for her child and three were adult respondents. Of those who answered "no," 13 served as proxies for their children and 6 answered for themselves (see Table 5).

Table 5: Frequency Table for SMQ.NEW10 (n=23)

	No	Yes	Don't Know
Adult (self-report)	6	3	0
Child (proxy report)	13	1	0

All of the respondents were able to answer the question with confidence. Of those who reported someone smoking, three were adults who rode in cars (rather than buses or trains); one respondent reported that his daughter had ridden in a car with his brother who was smoking at the time. Respondents who drove their children in their own cars were confident that there was no smoking. This confidence often stemmed from no smoking policies respondents enforced for anyone riding in their car. Respondents whose children rode in other people's cars felt equally confident that there had been no smoking because they knew the drivers to be non-smokers. One respondent said, if there was smoking, "they'd be in trouble."

SMQ.NEW11: During the last 7 days, did {you/your child} spend time in a home other than {your/his/her} own?

Nineteen respondents answered "yes" to this question and six answered "no." Of those who answered "yes," 13 served as proxies for their children and six answered on behalf of themselves. Of those who answered "no," three respondents served as proxies for their children and three answered on behalf of themselves (see Table 6).

Table 6: Frequency Table for SMQ.NEW11 (n=25)

	No	Yes	Don't Know

Adult (self-report)	3	6	0
Child (proxy report)	3	13	1

One respondent changed her answer from "no" to "yes" when she was administered the question, as she was anticipating the next question that asks specifically about smoking (*While {you were/your child was} in a home other than {your/his/her} own, did someone else smoke cigarettes or other tobacco products indoors?*). This respondent knows that she was not in any homes where people smoked, so she initially said "no"; however, upon hearing the full question, she changed her response to "yes" because she remembered that she was at her neighbor's house last night. Nobody smoked in her neighbor's home.

For respondents who are in many different people's homes over the course of the past week, it may be easy to overlook some of the homes they have visited. Three respondents, all of whom replied "yes" to this question, overlooked homes they spent time in other than their own during the last seven days. All of these respondents listed numerous people's homes in their narratives.

While there was no response error given the fact that all three of these respondents did indeed visit a home other than their own in the last seven days (even if they forgot to consider all of the homes), the fact that respondents may overlook some homes has implications for the following question: *While {you were/your child was} in a home other than {your/his/her} own, did someone else smoke cigarettes or other tobacco products indoors?* If respondents only consider a sub-section of the homes they actually visited for this subsequent question, respondents may not report a home where someone else smoked cigarettes or other tobacco products. This would lead to response error. During our cognitive interview testing, we saw no instances of this.

Given respondents' awareness of the smoking context for these survey questions, respondents may selectively think about homes where they know smoking took place. An example of this occurred during our cognitive testing. One respondent who was answering as a proxy for her son only thought about her son's father's home during question administration, despite the fact that her son had also been in her mother's and god-sister's homes in the last seven days. Her son's father smokes in the home, while no one smokes in the respondent's mother's or god-sister's homes. In this case, despite overlooking some homes during question administration, the home that the respondent *does* consider is a home where smoking takes place. Thus, even if this is the only home the respondent selectively considers in the next question, there would still be no response error.

SMQ.NEW12: While (you were/your child was} in a home other than {your/his/her} own, did someone else smoke cigarettes or other tobacco products indoors?

Five respondents answered "yes" to this question and 13 answered "no." Of those who answered "yes," two served as proxies for their children and three answered on behalf of themselves. Of those who answered "no," 10 respondents served as proxies for their children and three answered on behalf of themselves. One respondent who served as a proxy replied "don't know" (see Table 7).

Table 7: Frequency Table for SMQ.NEW12 (n=19)

	No	Yes	Don't Know
Adult (self-report)	3	3	0
Child (proxy report)	10	2	1

This question can potentially pose difficulty for respondents who serve as proxies for their children. Three respondents who replied "no" acknowledged in their narratives that they didn't know for certain if their child was in a home where smoking took place. These were all situations where the respondent was not present. For example, one of these respondents said that, although he knows his neighbors well, he doesn't know everyone who goes in and out of his neighbor's home while his child is there. Another respondent said that her mother smokes outside when her kids visit, but she "thinks" her mother smokes inside when the kids are not around. This respondent's narrative points to her uncertainty over her mother's smoking practices, which may include her mother's smoking practices when her kids visit. Only one respondent who expressed uncertainty replied "don't know." This respondent is sure her daughter was in some non-smoking homes but she can't speak with certainty about others because she wasn't there. She goes on to say that even if her daughter was at a non-smoker's home, she doesn't know if that person had company that smoked or if her daughter went somewhere she's unaware of.

This respondent's narrative also speaks to the potential uncertainty some respondents may encounter when determining what constitutes "smoking indoors." In the past seven days, her daughter visited her grandma's home, who allows smoking in the basement. It is not clear from her narrative as to whether she considers smoking in the basement to constitute "smoking indoors." Another respondent's narrative points to the fact that she considers smoking anywhere in the home to constitute "smoking indoors." Even though her son's father smokes in a different room when her son visits, she still considers this to be smoking indoors. A third respondent replied "yes" because her brother lit a cigarette indoors before immediately moving to balcony.

SMQ.NEW13: During the last 7 days, {were you/was your child} in any other indoor area?

Seventeen respondents answered "yes" to this question and eight answered "no." Of those who answered "yes," twelve served as proxies for their children and five answered on behalf of themselves. Of those who answered "no," four respondents served as proxies for their children and four answered on behalf of themselves (see Table 8).

Table 8: Frequency Table for SMQ.NEW13 (n=25)

	No	Yes	Don't Know
Adult (self-report)	4	5	0
Child (proxy report)	4	12	0

Unlike some previous questions (e.g., 4SHQ_Smoke11), this question did not appear to pose any additional difficulty for respondents who served as proxies. When thinking about "other indoor

areas," respondents listed such places as schools, retail and grocery stores, the bank, libraries, offices, the gym, therapy sessions, the hospital, and churches.

Overlooked indoor areas. When answering this question, ten respondents overlooked other indoor areas they had visited during the last seven days. Three of these respondents overlooked other indoor areas due to the smoking context of the survey and three respondents thought of additional areas they had visited during the probing process. For the remaining four respondents, researchers were unable to ascertain why respondent failed to consider other indoor areas they had visited in the past seven days.

- **Smoking context.** The broader context of the survey centered on smoking very clearly shaped at least three respondents' answers to this question. Two of these respondents answered "no" and one respondent answered "yes." In instances where respondents said "no," response error occurred. For example, during probing the interviewer said to one of the respondents who replied "no": "So you said you weren't in any other indoor areas?" and the respondent said, "No, not where smoking was." This respondent, however, had been in other indoor areas in the past seven days. When asked which ones he said, "Yeah, well work and my cousin's house—where they don't allow smoking indoors." When probed if he had been in any stores the respondent said, "Oh yeah, well, most stores, I mean, when they passed the [smoking] law I thought there was something wrong with it because they want you to go 100 feet away from the front of the entrance of the building." This respondent filters his entire narrative response through the context of smoking.

  The second respondent who replied "no" changed her response to "yes" during the probing process, stating, "You know I didn't really realize that question until now. Actually I was in an indoor area. We can count the stores, Safeway, that's indoor. But they're not smoking in the Safeway." Asked what she thought the question was asking she said, "I thought it was just related to smoking." Besides Safeway, in the last seven days this respondent had been to Target and a city building.

  The smoking context also informed the response of the one respondent who replied "yes." In this case, no response error occurred, as the respondent was thinking about the indoor meeting rooms she had been in during the last seven days. However, the smoking context of the survey still shaped the respondent's narrative; she goes on to cite the non-smoking policy in these meeting rooms. During the probing process she thought of additional indoor areas she visited in the past week, such as stores, and says, "But you can't smoke in them."

  Given respondents' awareness of the smoking context for these survey questions, respondents may selectively think about indoor areas where they know smoking takes place.

- **Additional areas recalled during probing.** Three respondents, all of whom replied "yes," thought of additional indoor areas they had visited during the probing process. While there was no response error given the fact that all three respondents reported

visiting an indoor area in the last seven days (even if they forgot to consider all of the indoor areas), the fact that respondents may overlook some indoor areas has implications for the following question: *While {you were/your child was} in the other indoor area, did someone else smoke cigarettes or other tobacco products indoors?* If respondents only consider a sub-section of the indoor areas they actually visited for this subsequent question, respondents may not report an indoor area they were in where someone else smoked cigarettes or other tobacco products. This would lead to response error. During our cognitive interview testing, we saw no instances of this.

SMQ.NEW14: While {you were/your child was} in the other indoor area, did someone else smoke cigarettes or other tobacco products indoors?

One respondent answered "yes" to this question, 15 answered "no," and one answered "don't know." The respondent who answered "yes" answered on behalf of themselves. Of those who answered "no," 11 respondents served as proxies for their children and four answered on behalf of themselves. One respondent who served as a proxy replied "don't know" (see Table 9).

Table 9: Frequency Table for SMQ.NEW14 (n=17)

	No	Yes	Don't Know
Adult (self-report)	4	1	0
Child (proxy report)	11	0	1

As indicated in the previous question, when thinking about "other indoor areas," respondents listed such places as schools, retail and grocery stores, the bank, libraries, offices, the gym, therapy sessions, the hospital, and churches. Given the statewide ban on smoking in these types of indoor areas, many respondents reported "no" to this question, and often explicitly cited the state law in their narratives. The respondent who replied "don't know" doesn't believe smoking took place in the other indoor areas but she selected "don't know" stating, "I can't say because I didn't see, but I doubt it."

The respondent who replied "yes" changed her response to "no" during probing stating that she thinks she "took the question wrong." However, she goes on to cite a community center she visited in the last seven days where people smoked. This respondent found the question to be "kind of tricky" because she was thinking about inside places where smoking occurs versus places where smoking does not occur. As with previous questions, the broader smoking context of the survey shaped this respondent's narrative. Although no response error occurred because the respondent was in an indoor place where smoking occurred in the last seven days, it appears as though she wasn't thinking of this community room when the question was originally administered. Overall she found the question difficult to answer.

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Appendix A

MODULE ON SECOND HAND SMOKE

To be asked of smokers, non-smokers, and parents of children 2-11 years

PREAMBLE*:* The next questions ask about (your/your child's) exposure to second hand smoke…

During the past 7 days, did you smoke cigarettes or any other tobacco product?

YES	1	
NO	2	(SMQ.NEW5)
REFUSED	7	(SMQ.NEW5)
DON'T KNOW	9	(SMQ.NEW5)

BOX NEW2

CHECK ITEM SMQ.NEW: ***(if child 2-11, ask about child)***
IF SP AGE 0-11, GO SMQ.NEW5, ELSE CONTINUE.

SMQ.NEW3 During the last 7 days, were you **working at a job or business outside of your home?**

YES	1	
NO	2	(SMQ.NEW5)
REFUSED	7	(SMQ.NEW5)
DON'T KNOW	9	(SMQ.NEW5)

SMQ.NEW4 While were you **working at a job or business outside of your home**, did someone else smoke cigarettes or other tobacco products indoors?

YES	1
NO	2
REFUSED	7
DON'T KNOW	9

SMQ.NEW5 During the last 7 days, did {you/your child} spend time in **a restaurant**?

YES	1	
NO	2	(BOX.NEW3)
REFUSED	7	(BOX.NEW3)
DON'T KNOW	9	(BOX .NEW3)

SMQ.NEW6 While {you were/your child was} in a **restaurant**, did someone else smoke cigarettes or other tobacco products indoors?

YES	1
NO	2
REFUSED	7
DON'T KNOW	9

BOX NEW3

CHECK ITEM SMQ.NEW:
IF SP >=**18 YEARS** CONTINUE, ELSE GO TO SMQ.NEW9.

SMQ.NEW7 During the last 7 days, did spend time in **a bar?**

YES	1	
NO	2	(SMQ.NEW9)
REFUSED	7	(SMQ.NEW9)
DON'T KNOW	9	(SMQ.NEW9)

SMQ.NEW8While you were in **a bar**, did someone else smoke cigarettes or other tobacco products indoors?

YES	1
NO	2
REFUSED	7
DON'T KNOW	9

SMQ.NEW9 During the last 7 days, did {you/your child} ride in **a car or motor vehicle**?

YES	1	
NO	2	(SMQ.NEW11)
REFUSED	7	(SMQ.NEW11)
DON'T KNOW	9	(SMQ.NEW11)

SMQ.NEW10While {you were/your child was} riding in **a car or motor vehicle**, did someone else smoke cigarettes or other tobacco products?

YES	1	
NO	2	
REFUSED	7	
DON'T KNOW	9	

SMQ.NEW11 During the last 7 days, did {you/your child} spend time in **a home other than {your/his/her} own**?

YES	1	
NO	2	(SMQ.NEW13)
REFUSED	7	(SMQ.NEW13)
DON'T KNOW	9	(SMQ.NEW13)

SMQ.NEW12 While {you were/your child was} in **a home other than {your/his/her} own**, did someone else smoke cigarettes or other tobacco products indoors?

YES	1	
NO	2	
REFUSED	7	
DON'T KNOW	9	

SMQ.NEW13 During the last 7 days,{were you/ was your child} in **any other indoor area**?

YES	1	
NO	2	(END OF SESSION)
REFUSED	7	(END OF SESSION)
DON'T KNOW	9	(END OF SESSION)

SMQ.NEW14 While {you were/your child was} in **the other indoor area,** did someone else smoke cigarettes or other tobacco products indoors?

YES	1
NO	2
REFUSED	7
DON'T KNOW	9