RESPONDENT ACCEPTANCE OF TOUCH-TONE DATA ENTRY IN COGNITIVE INTERVIEWS ON HIV/STD RISK BEHAVIORS

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General population surveys of HIV/STD risk behaviors are often hampered by respondents' concerns about privacy and confidentiality. Though face-to-face interviews can make use of self-administered questionnaires (computerized or paper-and-pencil), telephone surveys must use alternative techniques. This paper describes the results of focus group interviews to evaluate the effectiveness of touch-tone and/or dial-pulse telephone data entry. Telephone data entry was positively yet cautiously received by the focus group participants, with most participants indicating that it "probably" would increase people's willingness to answer sensitive survey items. However, telephone data entry was thought to be least effective with those highly sensitive survey items that would most often be answered untruthfully.

Key Words: Touch-tone data entry; sensitive behaviors; HIV/STD risk behaviors

Background

Policy development for human immunodeficiency virus (HIV) and sexually transmitted disease (STD) prevention calls for high-quality data to develop, target, implement, and evaluate effective prevention programs. The usefulness of these data would be enhanced if a standardized set of questions could be used when collecting data from all three groups targeted for prevention programs: infected persons, members of high-risk subpopulations, and the general population. To enhance the comparability of these data, a work group at CDC's National Center for HIV, STD, and Tuberculosis Prevention (NCHSTP) has been active in developing a "core set" of HIV/STD-related behavioral questions.

While extensive information on HIV/STD risk and preventive behaviors has been collected for infected and high-risk populations in many jurisdictions, the inclusion of explicit questions on risk and preventive behaviors in general population surveys has traditionally been limited by concerns about respondents' willingness to answer sensitive questions honestly. This manuscript reports on an early investigation into 1) whether survey respondents will honestly answer HIV/STD-related behavioral questions, and 2) whether telephone data entry will enhance respondents' willingness to answer these questions honestly.

Respondents may be more willing to answer sensitive questions honestly when they believe that their answers will remain anonymous. It has been hypothesized, for example, that "the greater anonymity associated with telephone interviews compared with personal contact [in face-to-face interviews] could yield more frequent reports of risky, socially disapproved behaviors" (McQueen, 1989). Indeed, studies have shown that less traditional or more embarrassing sexual behavior information (such as the number of sexual partners in the past year) is more likely to be admitted over the telephone than in face-to-face interviews (Czaja, 1987; see also Nebot *et al.*,

1994, for similar results with adolescents). Yet, questions about less sensitive and more traditional sexual behaviors (such as average frequency of sexual intercourse per week) are answered similarly in both modes.

Not only do telephone surveys result in more frequent reports of sensitive sexual behaviors, but these surveys also have low item nonresponse rates. For example, Catania and Coates (1989) report item nonresponse rates ranging from only 1% for questions about number of sexual partners to 9% for questions about respondents' enjoyment of certain sexual activities. Similarly, an anonymous telephone interview of men in Los Angeles County found item nonresponse rates of less than 4% for questions about oral and anal sex (Montgomery, Lewis, & Kirchgraber, 1991).

Once respondents have consented to an interview, most have been willing to answer sensitive sexual behavior questions. However, because increased perception of anonymity may result in more honest answers, survey researchers have pursued new methods to increase perception of anonymity and confidentiality. This research has led to the development of Computer Assisted Self-Interviewing (CASI) and Audio-CASI, which protect respondents' from having their individual and identifiable responses overheard or read by persons not participating in the interview. For the most part, these techniques have been developed for use in face-to-face interviews and have not been applied to telephone interviews. The most straight-forward equivalent—having a computerized voice read the options and having the respondent enter the answer into the phone using touch-tone keys—is generally seen as too impersonal to achieve high response rates and valid responses.

However, a more "personal" hybrid of this technique has been recently tested in a study of the sexual behaviors of District of Columbia adolescents aged 12-15 (Boekeloo, Schamus, Simmens, & Cheng, 1998). In this study, interviewers read sensitive questions over the telephone and adolescents responded by pressing or dialing the appropriate telephone digit. To retrieve adolescents' responses, research interviewers used a Digit Grabber® dialed digit meter. The Digit Grabber® (Model TPM-32, copyright Metro Tel Corporation, Jericho, NY) monitored and analyzed touch-tone and dial pulse signaling though the telephone system. Tones were heard through the monitor speaker as they were displayed on an alphanumeric screen. The researcher then transferred the displayed digit to the answer form.

Of the adolescents whose guardians consented to their participation, 85% agreed to participate. The prevalence estimates for sexual behaviors among these 14-15-year-olds were considered reliable because they were similar to estimates from the 1995 Youth Risk Behavior Survey (YRBS) of DC ninth-grade students. The YRBS is a paper-and-pencil questionnaire self-administered in schools (http://www.cdc.gov/nccdphp/dash/yrbs/index.htm). Thus, it was concluded that telephone response and Digit Grabber® dialed digit meters provide a reliable way of assessing sexual behavior in adolescents.

What about the sexual behaviors of adults? Can Digit Grabber® dialed digit meters be used with adults to increase honest responses to a general population survey on HIV/STD risk and preven-

tive behaviors? This question was explored in a series of focus group interviews. The interviews were divided into two parts: 1) a discussion of people's willingness to answer these questions honestly, and 2) a discussion of the potential impact of dialed digit meters.

Method and Design

Four single-sex focus groups (2 male, 2 female) were convened for 90 minutes each to discuss people's willingness to answer questions on STDs, HIV testing, and HIV/STD risk behaviors and the likelihood that these answers, when provided, would be truthful. Forty persons were recruited via an advertisement in the newspaper. The 29 participants who arrived on time for the discussions (13 women, 16 men) were diverse in age (22-50, *mean* = 38 years), race (11 White, 17 Black or African-American, 1 Asian), education (12-18 years, *mean* = 14.5), and sexual partner status (22 had sex with a long-term partner in the past 12 months, 7 did not). All participants were screened first to ensure that they had been sexually active in the past 12 months. The discussion moderator's gender was matched to the participants' gender.

Following introductions, the moderator described how telephone surveys are conducted, and then read 12 survey items aloud (see Table 1). These 12 items were selected from early drafts of the "core set" of HIV/STD-related behavioral items developed by the NCHSTP work group. Focus group participants were instructed not to answer the survey items themselves, but rather to rate each survey item on two criteria: "Do you think people you know would be willing to answer this question?" and "Do you think people you know would give an honest answer to this question?" These ratings were reported on 5-point scales labelled at each point with "definitely no" (1), "probably no" (2), "maybe / not sure" (3), "probably yes" (4), and "definitely yes" (5). After the 12 questions were read and ratings were completed, the moderator distributed a copy of the questions so that participants could refer to them during discussion. Discussion focused on participants' ratings and on their suggestions for improving the questions or survey design to make them clearer, easier to answer, and less sensitive.

Toward the end of the discussion, the moderator introduced the idea of dialed digit meters as a means of enhancing people's degree of willingness and honesty. This method of touch-tone data collection was described by way of analogy to the information systems encountered when calling businesses and government agencies ("press 1 for this, press 2 for that"). The moderator explained that live interviewers would read each question, but rather than answer aloud, respondents would enter their answers directly into the phone. For each of the 12 questions, participants were asked to rate whether this method would make people more willing to answer the questions and more likely to be truthful. These ratings were provided on the same 5-point scale as the earlier ratings.

Ratings of Willingness

Participants were generally uncertain whether people they knew would be willing to answer these survey items, and the average rating reflects this uncertainty (*mean* = 3.68). (See Table 2

Table 1—Survey Items Presented During Focus Groups

Item Number	Question
#1	Except for tests you may have had as part of blood donations, have you ever been tested for HIV, the virus that causes AIDS?
#2	Do you expect to have a test for HIV in the next 12 months, not including blood donations?
#3	The next question is about sexually transmitted diseases or STDs. STDs are also known as venereal diseases or VD. Examples of STDs are gonorrhea, syphilis, herpes, and genital warts. In the past five years, have you had an STD other than HIV or AIDS?
#4	During the past 12 months, have you had sex? By sex, we mean oral, vaginal, or anal sex, but not masturbation.
#5	During the past 12 months, with how many people have you had sex?
#6	A long-term sexual partner is anyone with whom you have had a sexual relationship for at least 12 months. During the past 12 months, have you had sex with someone who was NOT a long-term sexual partner?
#7	During the past 12 months, to the best of your knowledge, have you had sex with someone who was also having sex with other people?
#8	I'm going to read you a list of 7 statements. When I am done, I will ask you if any of these statements are true for you. Do not tell me which statement or statements are true for you. Just if any of them are. a) You tested positive for having HIV, the virus that causes AIDS. b) In the past year, you had sex with someone who has tested positive for having HIV or any other sexually transmitted disease. c) In the past year, you had sex with a man who has sex with other men. d) In the past year, you took street drugs using a needle. e) In the past year, you had sex with someone who takes street drugs using a needle. f) In the past year, you traded sex for money or drugs. g) In the past year, you had sex with someone who trades sex for money or drugs. Is at least one of these statements true for you?
#9	The last time you had sex, was a condom used?
#10	The last time you had sex, did you have oral sex?
#11	The last time you had sex, did you have anal sex?
#12	During the past 12 months, have you had sex with only males, only females, or both males and females?

for ratings on individual items.) Although this rating was between "probably yes" and "maybe/ not sure," the majority of comments ranged from negative to undecided:

1. *Some of this stuff is just flat not going to be answered.*
2. *People I know would not be willing to answer none of them.*
3. *I would decline for the survey. It would be the topic that would be a turnoff.*
4. *With HIV, some people are very sensitive and they don't like to tell.*
5. *It also depends on the person's background. I come from a community where you don't discuss sex.*
6. *It depends on how much they really trust that it's anonymous–any of the questions actually–because they are so personal.*
7. *I had lots of maybe's.*

Participants believed that people they knew would be least likely to willingly answer the following survey items:

#3	"STD in past five years?"
#5	"Number of sexual partners?"
#7	"Partner not monogamous?"
#8	"Any of these risk factors true for you?"
#11	"Did you have anal sex?"

As expected, then, these items also led to the most discussion. Reasons why people might be unwilling to answer these questions included social disapproval for positive answers (#3, #5, #11) and a belief that positive answers would be a negative reflection on themselves (#8). These reasons not only reflect the need to assure respondents that their answers are anonymous or confidential, but also suggest that respondents do not believe that telephone surveys in general are anonymous or confidential.

Some participants also expressed a desire to not think about the possibility of a positive answer being true (especially #7). "*They would like to be oblivious and they don't want that thought popping into their head. That's why it is offensive*," said one female participant.

Ratings of Truthfulness

As with judgments of willingness, participants were uncertain whether people they knew would honestly answer the questions, and this uncertainty is reflected in the average rating (*mean* = 3.40). It should be noted that judgments of honesty were lower than judgments of willingness for every one of the 12 survey items (overall paired t [11] = 8.32, $p < .001$). Some participants suggested that people may find it less confrontational to report socially acceptable answers than to refuse to answer a question. This suggests that item non-response in a large-scale survey will not be a sufficient measure of the sensitivity of responses to these survey items.

The 5 survey items that were identified as those least likely to be answered were also the 5 items identified as those least likely to be truthfully answered. In addition, compared with men's mean ratings, women believed that people they knew would be less truthful when answering #1 ("ever had HIV test?": males = 4.00, females = 3.38, t [25] = 1.74, p = .09) and #2 ("expect to have HIV test?": males = 4.06, females = 3.31, t [23] = 2.34, p = .03). In discussion, women seemed more likely than men to believe that having had an HIV test or expecting to get an HIV test reflected something socially unacceptable about oneself.

Ratings of the Effectiveness of Dialed Digit Meters

Participants appeared to be intrigued by the possibility of increasing privacy through the use of dialed digit meters:

- *I have no problem with answering, but other people might have a problem knowing that their spouse or*

Table 2—Mean Ratings From 29 Focus Group Participants[a]

Item Number	Question	Would people you know be willing to answer this question?[b]	Would people you know give an honest answer?[b]	Would touch-tone response make people more willing to answer?[b]	Would touch-tone response make people answer more honestly?[b]
#1	Ever had HIV test?	4.0	3.7	3.8	3.7
#2	Expect to have HIV test in next 12 months?	4.0	3.7	3.8	3.7
#3	STD in past five years?	3.5	3.1	3.7	3.4
#4	Sex in past 12 months?	4.2	4.1	4.1	4.1
#5	Number of sexual partners in past 12 months?	3.3	3.0	3.8	3.4
#6	Sexual partner not long-term partner?	3.9	3.5	4.1	3.8
#7	Partner not monogamous?	3.4	2.9	3.8	3.5
#8	Any of these risk factors true for you?	3.1	3.0	3.7	3.4
#9	At last sex, did you use condom?	4.1	3.7	4.1	4.1
#10	At last sex, did you have oral sex?	3.6	3.5	3.9	3.8
#11	At last sex, did you have anal sex?	3.2	3.0	3.6	3.3
#12	Gender of sexual partners?	3.8	3.6	3.7	3.3

[a]Standard deviations of the responses are not provided because the skewed distribution for most of the ratings makes the standard deviation of the raw scores nearly meaningless. All statistical tests reported in the text used logarithmic transformations and assumed unequal variances.
[b]1 = Definitely No, 2 = Probably No, 3 = Maybe / Not Sure, 4 = Probably Yes, 5 = Definitely Yes

something is in the house and can pick up that phone in a minute. That's a plus for the Digit Grabber. You're not worried or nothing.

- *It's more secretive to them. They're basically giving you confidential answers that way.*
- *I think people will be more comfortable, because once again, it's more anonymous.*
- *That might work. You'll probably get more honesty that way.*
- *I think it'll work. People will be more honest with it.*
- *...a lot less pressure on the person that way.*
- *I tend to think the push button makes it easier.*

Despite the positive tone of the comments, participants were cautious about drawing absolute conclusions:

- *I think it would work. But if someone is willing to answer the questions, it probably doesn't matter if it was push-button or verbal.*

- *You're definitely making it less personal to the point that maybe....I think that the things they don't think will harm them they'll be more willing to push on a button, such as 'have you been tested for AIDS' or something. We're all dealing with that now, and maybe they'll do that, but I think people are suspicious by nature.*
- *Nothing is going to work if you don't want to take part in the survey.*
- *Those people who are not going to answer are not going to answer.*
- *It really boils down to the other person being comfortable with what's best for them.*

Ratings reflected these positive, yet cautious, comments. Participants believed that this technique would "probably" increase people's willingness to answer the survey items (*mean* = 3.83). Judgments about whether this technique would increase the truthfulness of the responses were more mixed (*mean* = 3.63). According to the participants, the survey items that would be most positively influenced by the dialed digit meters were <u>not</u> the survey items that people they knew would be least likely to answer truthfully otherwise. Instead, the dialed digit meters were thought to most positively influence willingness and truthfulness for the following survey items:

#4 "Sex in past 12 months?"
#6 "Sexual partner was not long-term partner?"
#9 "At last sex, did you use condom?"
#10 "At last sex, did you have oral sex?"

For all 12 items, ratings of whether the questions would be answered honestly were positively related to ratings of whether the dialed digit meters would make people answer more honestly, *correlation coefficient* = .74. In other words, the dialed digit meters were thought to be least effective with those survey items that would most often be answered untruthfully.

Analyses of gender differences in the mean ratings revealed that men were marginally less positive than women about the ability to increase willingness using the dialed digit meters (men = 3.58, women = 4.14, t [18] = 1.80, p = .09). However, this slight gender difference was less pronounced (and not statistically significant) for ratings about whether people were more likely to be truthful, t (19) = 1.57, p = .13. In general, men were more likely to question whether the dialed digit meters truly increased anonymity and confidentiality:

- *You might be a little more comfortable giving answers to the questions, but in terms of honesty to some of these particular questions, I think the difference is so slight. I don't think there is going to be a difference, because if you are honest, it's going to put you in a bad light.*
- *...still not anonymous if they initially contact you. The difference between verbally saying yes or no, or pressing one for yes and two for no...no difference to me.*
- *I know what those tones sound like off each one of those digits. So, if you're still pushing buttons, there's still going to be a thought that electronically there is a person there who is still going to get what you're saying.*

On the other hand, women were generally more likely to recognize other benefits of using dialed digit meters:

- *Not too many people would go out of their way to set up something like that just to get your private information. So, yeah, it adds legitimacy.*
- *You won't be able to hear [the interviewer's] little underlying comments. You know, those sarcastic*

sounds. They could keep their little snide comments to their self.

Finally, both male and female participants noted that, if the dialed digit meters were used, some answer choices would need to be changed. For example, one female participant said, "*Just thinking of #5* ['number of sexual partners in past 12 months'], *like, if it's a two-digit number....That's a question that needs a range rather than a specific answer, like zero-thru-five, six-thru-ten, something like that.*"

Discussion

Every participant agreed that the most important topic discussed during the focus groups was the need for strict confidentiality of individuals' responses. Everyone believed that respondents' privacy, confidentiality, and preferably anonymity must be assured before anyone should be expected to willingly answer these survey items truthfully. It is perhaps reassuring to note, however, that all participants who were asked believed that the government should be involved in the collection of data on HIV testing, STDs, and sexual risk behaviors.

Federal data collection agencies responsible for monitoring health and health risk behaviors have a responsibility to continue to develop survey methodologies that increase respondents' privacy when answering surveys on sensitive topics. This manuscript presents the results of a series of discussion groups focused on one potential new telephone survey methodology: touch-tone data entry with Digit Grabber® dialed digit meters.

Touch-tone data entry was favorably received, with most participants indicating that it "probably" would increase people's willingness to answer sensitive survey questions. Views on whether touch-tone data entry would increase the truthfulness of answers were more mixed, with discussion often questioning whether this technology sufficiently protected privacy and confidentiality. This continued concern with privacy and confidentiality issues even when dialed digit meters are used was reflected in the ratings: The five items least likely to elicit an honest answer were the same five items that were perceived to be least influenced by dialed digit meters. These five items were the most sensitive items (e.g., number of partners, anal sex), suggesting that this technology may be successful only with less sensitive sexual behavior questions.

Of course, these conclusions have their limitations. Most important, perhaps, is that some participants explicitly stated that their thoughts may not apply to others: *"Just because we say people we know will be honest, we don't know the people we know. It's an individual choice."* In addition, though participants were asked to rate whether people they knew would willingly answer these questions, discussion revealed that many participants narrowed their focus further, thinking about *"people who are in my personal group"* or *"myself."* Thus, these ratings may not be widely generalizable.

Therefore, the next step in evaluating the effectiveness of dialed digit meters involves using these meters in population-based telephone surveys on sensitive topics. As of the date of this manuscript (August 1999), we have applied for human subjects approval of a telephone-based field

test of a core set of HIV/STD risk and preventive behavior questions using a random-digit-dial sample of the general population. This field test will randomly select and recruit at least 400 adults in New Jersey aged 18-49 for the purposes of testing the questions and the survey methodology. Half the respondents will use Digit Grabber® dialed digit meters when answering the HIV/STD risk behavior questions; a control group will not use the dialed digit meters. The HIV/STD behavior questions will be included as part of a longer general health survey. Anticipated analyses will compare the meter group and the control group on survey response rates, HIV/STD item non-response rates, and prevalence estimates. In addition, prevalence estimates will be compared with estimates from the Behavioral Risk Factor Surveillance System (BRFSS: http://www.cdc.gov/nccdphp/brfss/index.htm), which has used telephone surveys to collect limited HIV/STD risk behavior data on the general New Jersey population annually since 1997. Because the BRFSS does not use dialed digit meters, this sample provides another control group to use as we continue to evaluate the effectiveness of dialed digit meters in population-based telephone surveys on sensitive topics.

Acknowledgments

The research reported here was conducted with the support of the National Center for Health Statistics' Questionnaire Design Research Laboratory. We would like to thank Karen Whitaker for her assistance recruiting participants and handling administrative arrangements, and Susan Schechter for her helpful advice during the design of this study.

For More Information

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