

# **Computer-Assisted Audio Video Versus Traditional Blood Donor Screening: Initial Results**

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# Donor Truthfulness Problems\*

<u>Behavior</u>	<u>Paper Questionnaire (%)</u>	<u>Computer-Assisted Questionnaire (%)</u>
Crack/cocaine	3.3	6.0
Male/male sex	1.5	5.5
IV drug abuse	1.4	5.2
Paid for sex	1.6	3.8

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\* Turner, et al. *Science* May 8, 1998, p.867.

# Teens admit behavior to computers

By **DEB RIECHMANN**

Associated Press writer

**WASHINGTON** — When asked to answer probing, personal questions on a computer rather than a pencil-and-paper questionnaire, male teen-agers are much more apt to admit to dangerous behavior, including actions risking AIDS, a study says.

If the answers they type into laptops are more truthful, then the risks that young men take today are much greater than previously thought, according to the study of more than 1,600 teen-agers in the 1995 National Survey of Adolescent Males, published Friday in the journal *Science*.

The study suggests that paper questionnaires and surveys conducted by personal interviewers underestimate the health and social risks that confront 15- to 19-year-old males.

The researchers assumed the computer answers to sensitive questions are more accurate than written ones, reasoning that the teens worry less about survey-takers or members of their family seeing their responses.

"The kids are just not willing to tell you about the stigmatized behaviors they've engaged in," says Charles Turner, lead re-

searcher on the project and director of the program in health and behavior measurement at the Research Triangle Institute in Washington.

"When you give them a private way, the evidence suggests their answers are more accurate — the numbers are significantly higher," Turner said.

For example, the percentage of teens who said they:

- Engaged in male-male sexual contact was 1.5 percent on the written survey, but 5.5 percent on the computerized one.

- Had sex with a prostitute more than tripled from 0.7 percent to 2.5 percent.

- Used crack or cocaine during the past year nearly doubled from 3.3 percent to 6 percent.

- Took street drugs with a needle more than tripled from 1.4 percent to 5.2 percent.

- Carried a gun in the past 30 days rose from 7.9 percent to 12.4 percent.

In addition, sexually active males who say they or their partner were drunk or high when they last had heterosexual intercourse more than doubled from 15.3 percent on the written survey to 34.8 percent on the computerized one.

"It's the ultimate get-your-head-out-of-the-sand message," says Jane Silver, director of the

American Foundation for AIDS research. "What it's saying is that people are engaging in even more risky behavior than we thought."

It's unclear whether the new data will translate into any new public policy to prevent AIDS or substance abuse, said Don Des Jarlais, director of research for the Chemical Dependency Institute at Beth Israel Medical Center in New York.

Between 40,000 and 80,000 Americans become infected with the AIDS virus each year, and one in four are under age 20. Studies suggest that half of all people who contract HIV are infected using dirty needles, having sex with injecting drug users or being born to infected addicts.

"This is a very important study indicating that there is a lot more to be concerned about than we previously thought," Des Jarlais said.

This is not the first time that data have been collected with computerized questionnaires. But the study is one of the first to compare such results with traditional written types of surveys.

It is the first national randomized experiment assessing the impact of the new survey technology in measuring highly sensitive behaviors, such as drug use, sexual behaviors that risk

HIV transmission and violence against others.

In Turner's study, an interviewer surveyed all the respondents about sex, contraception and other issues. Then, one group answered more sensitive questions on a standard written survey. Another group answered the same questions using laptops and headphones.

The computer-driven technology administers survey questionnaires in an audio format and records respondents' answers without the direct participation of a survey interviewer. Respondents listen over headphones to spoken questions that have been digitally recorded and stored on a laptop computer. To answer, they press numbered keys on the computer keyboard.

Computerized surveying can help overcome respondents' tendency to give answers they think the interviewer wants to hear, said David Bloom at the Harvard Institute for International Development.

However, Bloom says interviewers need to be trained in using the new survey technology and they need to be able to teach respondents, including those who are illiterate and unfamiliar with computers, how to use it.

# Computerized Screening (52,650 Donors)\*

What effect would computer screening have on the blood donor interview process?

Age Category	<u>18-24</u>	<u>25+</u>
Percent	8.3	91.7
Answers more confidential (%)	47.4	28.8
Answers more accurate (%)	35.5	17.9
Help reveal personal information(%)	37.7	15.5
Help quicken process (%)	66.1	49.2

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\* Watanabe, K., et al. *Transfusion (Supp)* 1999;39:1255

# Purpose of Study

To evaluate a computer-assisted  
interactive video blood donor screening  
system (IVDS) \*

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\* Copyright by Talisman, Ltd., Vienna, VA

# IVDS System Components

- ◆ PC and touch screen
- ◆ keypad
- ◆ earphones
- ◆ printer
- ◆ face-to-face (FTF)  
back-up

# Functional Characteristics

- ◆ illustrated questions on touch screen
- ◆ audio synchronized with questions
  - absolute privacy (earphones)
  - optional abort after interval\*
    - can not abort “vital questions”
- ◆ response made on touch screen

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\* not part of system used in this study

## Medical History

### Question 21

Have you taken drugs,  
either self-injecting  
(including steroids) (32)  
or intranasal cocaine?  
(08)



Patricia M. Carey, M.D.



Self-injected Drugs?

Back

Yes

???

No

Next



# Nature of Clinical Trial

- ◆ trial at university-affiliated blood center
  - only at central site (fixed)
  - better educated donors than average
- ◆ first-time (6%); repeat (94%)
- ◆ standardized health history questions
- ◆ system approved by FDA

# Results - Operational

- ◆ 277 donors completed survey
  - two donors declined to use system
- ◆ 3.5% of donors skipped one question
  - asked orally later
- ◆ 10% did not understand one question
  - clarified orally later
- ◆ IVDS ↑ screening time (by about 5 min.)\*

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\* ↓ by 3-5 minutes with audio bypass option exercised

# Acceptance - Donors' Attitudes

- ◆ questionnaire elicited 5-point graded responses
- ◆ understandability - 92% favorable
- ◆ compared with FTF screening:
  - 67% - truth more likely
  - 95% - more comfortable with privacy
  - likelihood of repeat donation:
    - greater - 28%
    - less - 7%

# Results - Advantages/Efficacy

- ◆ addresses 55% of FDA errors/accidents\*
- ◆ privacy is absolute (audio)
- ◆ clearer (question-specific illustrations?)
- ◆ reduces costs:
  - 30% decreased staff interview time
  - ↑ repeat donations (↓ cost \$10 - 30)
- ◆ overnight change ability

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\* FDA Error and Accident Reports: Annual Summary FY 1998

# Reasons for Success

- ◆ very high donor acceptance
  - millions of Americans own PC's
  - ages of donors are decreasing
  - to youths, computers are way of life
- ◆ inject “fun” into donation process

# Conclusions

- ◆ donors preferred IVDS to FTF screening
- ◆ donors appear more likely to tell the truth
- ◆ 28% were more likely to repeat donation
  - ↓ costs
  - ↓ infectious disease risks
- ◆ eliminates up to 55% of screening errors
- ◆ IVDS results warrant broader implementation