IT use in a respondent driven sampling survey, Kampala, Uganda

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The findings and conclusions of this presentation are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention

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Outline

• The Crane Survey – design
  1. Audio information
     – Survey information
     – Consenting language
  2. Fingerprint scans
     – Linking recruits’ 1st and 2nd visit
     – Identifying duplicates
  3. Recruit management software
     – Coupon management
     – Monitoring of survey events
  4. Audio-computer assisted self interviews (ACASI)
The Crane Survey

- Bio-behavioral survey in Kampala (Uganda), 20 staff
- Objectives:
  - To estimate HIV/STI prevalence
  - To evaluate risk factors for HIV/STI
- Target groups
  - Men having sex with men and female sex partners
  - Female sex workers and sex partners
  - University students, motor cycle taxi drivers
- Sampling - passive:
  - Respondent driven sampling, single survey office
  - Concurrent sampling of all groups, 5-100 recruits per day
Crane Survey – main procedures

Two visits to survey office:

• **Initial visit**
  – Eligibility, consent
  – Interview
  – Specimen collection
  – Coupon issuance

• **Return visit**
  – Return of test results

• **No personal identifiers collected**
Waiting room – audio information

Recruits present survey coupon, receive folder and **CD/MP3 player** to inform about survey

- All information both on paper and on CD/MP3
  - Recruits can listen and/or read
- Two languages
- Sex and group-specific text
- Cartoons (specimen collection, paper version)
Contents of information package

- Welcome & survey overview
- Information sheet (consent language)
- Terms and phrases used in ACASI: anal sex, sex partner types (steady, casual…), etc.
- STD testing info*
- Peer recruitment instructions

Total listening time: 30 – 45 minutes

*HIV, gonorrhea, chlamydia, syphilis, bacterial vaginosis, trichomoniasis
Audio information package – pros and cons

- Recorded in studio quality, pleasant to listen
- Delivery of standardized information
- Saves survey staff time
- Utilizes recruits’ waiting time
- Recruits can play and re-play as needed
- No incident of theft by recruits

- Players may get broken (MP3 better)
- Batteries need to be re-charged regularly
Registration – Anonymous identification using fingerprints

• All recruits have fingerprints scanned
  – Unique alphanumeric code
  – No image recorded
  – Code cannot reconstruct fingerprint image
  – Upon re-scanning, same code is generated

• Hardware: Microsoft fingerprint readers

• Software: Griaule
Screenshot - fingerprint scan software
Uses of fingerprint scanning

- To detect duplicates (recruits presenting again with another coupon)
- To link return visit with initial visit
- To link various survey procedures within same visit
Fingerprint scanning – pros and cons

- Very accurate
- Highly acceptable
  - Few questioned compatibility of “anonymity” and fingerprinting
  - No recruit refused
- Different “posture” of finger on scanner generates different codes. Solution:
  - Scan several or all fingers to increase matches
  - Verbal password procedure as back up
Recruit management software: WinMARP

- In-house software
- Microsoft Visual C# 2008
- SQL Server 2008 for data storage
- Manages coupons & recruits
WinMARP: coupon management

- Records all issued coupons
  - Issuance, appointment, expiration date
- Records redeemed coupons
  - Detects illegitimate coupon numbers
    - Duplicates
    - Non-issued coupon numbers
    - Expired coupons
- Links recruiters’ and recruitees’ coupons
- Documents entire trail of coupons (seed to last wave)
## WinMARP – coupon screen shot

<table>
<thead>
<tr>
<th>Coupon</th>
<th>Issued to</th>
<th>Issue date</th>
<th>Start date</th>
<th>End date</th>
<th>Appointment date</th>
<th>Claimed by</th>
<th>Wave</th>
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</thead>
<tbody>
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<td>3706</td>
<td>10/20/2008</td>
<td>10/21/2008</td>
<td>10/24/2008</td>
<td>10/13/2008</td>
<td></td>
<td>11</td>
</tr>
</tbody>
</table>
WinMARP: recruit management

• Tracks recruit while in survey office
  – Registration
  – ACASI interview
  – Specimen collection
  – Coupon issuance for sampling

• Project manager monitors survey office events in real time
WinMARP features

• Easy-to-use interface for end user
• Advanced interface for project manager
• Generates detailed SQL reports
  – Number of recruits recruited
  – Coupon uptake
  – Proportion of recruits eligible
  – Consent to specimen collection, etc…
ACASI

- Main interview ACASI-based
- Software: **QDS** (Questionnaire Design Studio)
- Approximately 100 questions
  - Duration 30-60 minutes
  - Depending on recruit, skip pattern
- Response options:
  - Touch screen, “mouse”, or keyboard (numbers)
  - Responses: categorical or numerical
ACASI room

- Data manager in ACASI room
  - Opens new ACASI file for recruit
  - Keys in Recruit ID (double)
  - Conducts short ACASI tutorial
  - Available to help during interview

- Recruits listen and/or read questions

- 6-8 ACASIs concurrently
ACASI – pros

• Literature indicates ACASI may more accurately measure stigmatized behaviors
• Most prefer ACASI over face-to-face (>90%)
  – More comfortable answering sensitive questions
  – Less tiring
  – Feasible with illiterate, computer-naïve recruits
• Standardized delivery of questions
• Saves staff time
  – Interview
  – Data entry, cleaning
What kind of sex did you have with that person?

- Vaginal
- Anal
- Both
- Prefer not to answer
ACASI – cons

- Power dependability
- No hard copy data to fall back to >> frequent data back up essential
- Theft: Crane Survey office burglarized, all PCs stolen
Conclusion

• Standard survey information efficiently delivered electronically
• Fingerprint scans collect exact biomarkers without violating anonymity
• Digital tracking of survey procedures in real time (WinMARP)
• ACASI feasible for high risk groups, illiterate & computer-naïve persons
Conclusion (2)

- Uninterrupted power supply critical
- More complexity
- Good data back-up very important

- IT facilitates
  - standardization of procedures
  - efficiency (staff time)
  - data accuracy
Thank you

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