

# Implementing Audio Computer Assisted Self Interviewing in Basil

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14th International Blaise Users Group Conference  
London, United Kingdom



# Areas of Discussion

- Background
- Requirements
- ACASI Module
- Integrating ACASI into the NHIS Instrument
- Developing and Deploying the ACASI Module
- Future Initiatives
- Conclusion



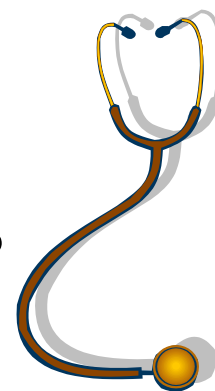
# Background

- Audio Computer Assisted Self Interviewing (Audio CASI or ACASI)
  - Respondents given access to a computer
    - Device displays questions and answer lists, and
    - Plays recordings of the questions and answers
  - Respondents answer questions on their own
- ACASI goals
  - Private environment
  - More likely to obtain candid responses
  - Help alleviate literacy issue



# Background

- National Center for Health Statistics (NCHS)
  - National Health Interview Survey (NHIS)
    - CAPI survey
    - Health data on of the population of the USA
- Sept. 2010: ACASI pilot project
  - Questions on sexual orientation



# Background

- NCHS's initial proposal
  - 2<sup>nd</sup> device for ACASI portion of interview
    - Not the CAPI laptop
    - Small touch screen device (e.g., iPad)
  - NCHS to prototype ACASI application
    - Experiment with the ACASI technology
    - Rapidly develop and test various methods
- Constraints required use of CAPI laptop



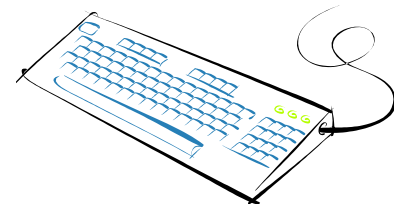
# Background

- Census Bureau recommended Blaise
- NCHS evaluated Blaise
  - User interface too complicated
  - Could not be customized enough to meet its needs
- Westat & Statistics Netherlands consulted
  - NCHS researchers decided to use Basil



# NCHS's ACASI Prototype

- Keep the user interface simple as possible
  - Enter key
    - Save answer and move to next page
    - **Green** button
  - Space Bar
    - Scroll through answer list
    - **Red** Circle key
  - Caps Lock key (later changed to Tab key)
    - Back up one screen
    - Color **Orange** button (later changed to Blue)



# NCHS's ACASI Prototype

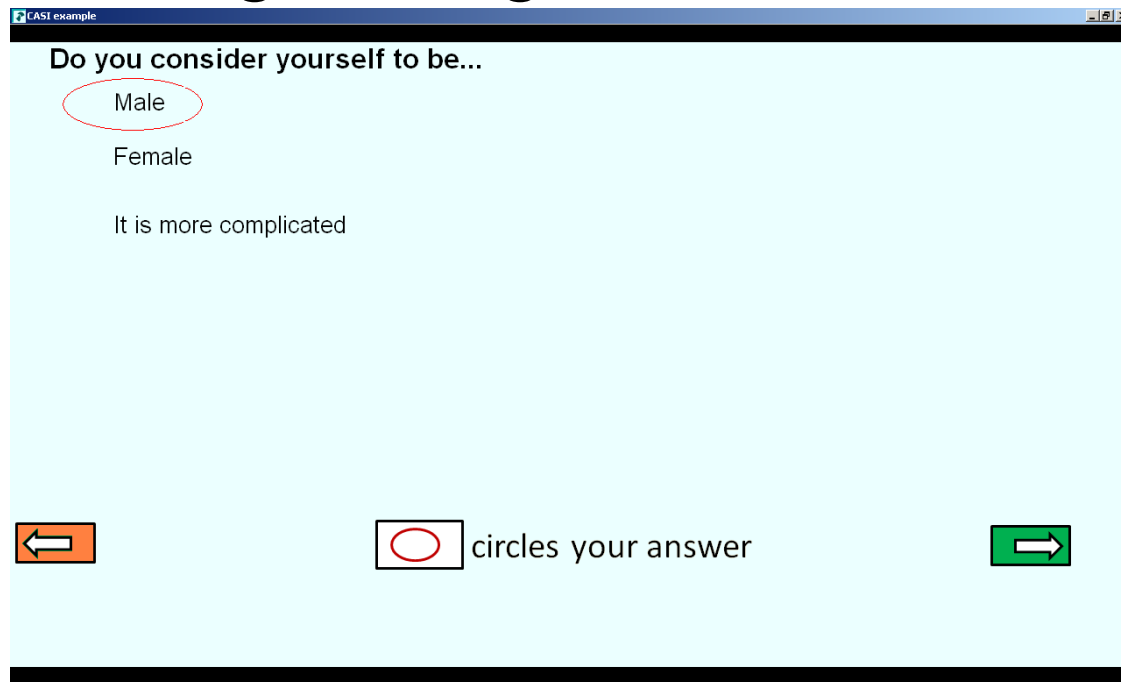
Laptop keyboard used in NCHS's prototype





# NCHS's ACASI Prototype

Screen from early prototype  
Scrolling through the answer list



# ACASI Project Requirements

- High Level ACASI Requirements
  - ACASI Prototype is foundation
  - Specialized, color coded keys
  - Scroll through answer list to repeat question
  - Instrument allows blank answers
  - Cannot back into ACASI after completion
  - NHIS instrument launches ACASI module
  - ACASI data stored in NHIS instrument's db



# ACASI Project Requirements

- 3 ACASI Field Tests
  - 50 Case Test in November 2011
  - 1,100 case test in April 2012
  - 11,000 Case Test in July 2012



# ACASI Module

- 3 types of screens
  - Instructions
    - Information about using the ACASI module
    - Most appear at the beginning of the questionnaire
  - Questions with an answer list
    - many include 'Don't know' and 'Refusal' options
  - Questions asking for numeric or text response






# ACASI Module

PHHS ACASI v1.07

If you want to change or see your answer to a previous question you can back up using the Blue Arrow Key. Each time you press this key, the computer will go back one question.

Press the Green Arrow Key to continue.  
Pressing the Green Arrow Key will always take you to the next question even if you don't pick an answer.

  circles your answer 

# ACASI Module

NIHS ACASI v1.07




Were any of your grandparents born in the United States?

Yes

No

I don't know the answer

I don't want to answer

  circles your answer 

# ACASI Module

PHIS ACASI v1.07




In the past year, how many days did you drink any type of alcoholic beverage?  
Enter the number of days you drank any alcoholic beverage in the past year  
then press the Green Arrow Key.

Press 0 for no days.

days

I don't know the answer

I don't want to answer

  circles your answer 

# ACASI Module

- Organization of Basil datamodel
  - Basil APPLICATION section
    - Specifies global information
  - AUXFIELDS section
    - Questions & responses are separate AUXFIELDS
  - FIELDS section
    - Data storage
  - RULES section
  - LAYOUT section
    - Specify which AUXFIELDS appear together



# ACASI Module

- Implementing ACASI questions in Basil
  - Implemented questions using same technique
  - Used slight variations to achieve the desired results for each question



# ACASI Module

## Alcohol Use Question

PHS ACASI v1.07




In the past year, how many days did you drink any type of alcoholic beverage?  
Enter the number of days you drank any alcoholic beverage in the past year  
then press the Green Arrow Key.

Press 0 for no days.

days

I don't know the answer

I don't want to answer

  circles your answer 

# ACASI Module

## Basil question section for an alcohol use question

ACIALCDS\_Question

```
"<question>  
<audio name=acialcds_q src='ACIALCDS_Q.1.mp3'>  
<label left=45 width=1200 text='<font size=24><B>In the past year, how many days did you  
drink any type of alcoholic beverage?<br>Enter the number of days you drank any alcoholic  
beverage in the past year then press the Green Arrow Key.<br><br>Press 0 for no days.'>  
<input left=100 top=200 width=50 height=40 columns=1  
onenter='blaise:playmedia(acialcds_q)'  
onexit='Blaise:stopmedia(acialcds_q)'  
onreturn='runtime_ACASI_procedures.ACIALCDS_RangeCheck;blaise:save();runtime_ACASI_procedures.ACIALCDS_Check;blaise:nextpage()'  
onkey_1='blaise:gotofield(ACIALCDS_DontKnow)'  
onkey_2='blaise:save();runtime_ACASI_procedures.Special_backup_8'>  
<label left=160 top=200 width=100 text='<font size=20><B>days'>  
</question>" : INTEGER[3], EMPTY
```

# ACASI Module

## Basil question section for an alcohol use question's "Don't Know" answer option

ACIALCDS\_DontKnow

```
"<question>
  <audio name=dontknow src='DONTKNOW.mp3'>
  <input left=100 width=310 height=30 top=15 columns=1
  AUTOSELECT=false SHOWSELECTCONTROL=false SHOWFOCUSRECT=false
  onenter='blaise:playmedia(dontknow) '
  onexit='Blaise:stopmedia(dontknow) '
  onreturn='blaise:save();runtime_ACASI_procedures.ACIALCDS_Check;blaise:nextpage() '
  onkey_1='blaise:gotosfield(ACIALCDS_Refuse) '
  onkey_2='blaise:save();runtime_ACASI_procedures.Special_backup_8'>
  <ellipse left=45 width=460 height=60 visible=true transparent=yes FocusedBorderColor=red>
</question> " : (Dont_Know (1) "I don't know the answer")
```

# ACASI Module

## Basil question section for an alcohol use question's "Refusal" answer option

ACIALCDS\_Refuse

```
"<question>  
  <audio name=dontwant src='DONTWANT.mp3'>  
  <input left=100 width=300 height=30 top=15 columns=1  
  AUTOSELECT=false SHOWSELECTCONTROL=false SHOWFOCUSRECT=false  
  onenter='blaise:playmedia(dontwant) '  
  onexit='Blaise:stopmedia(dontwant) '  
  onreturn='blaise:save();runtime_ACASI_procedures.ACIALCDS_Check;blaise:nextpage() '  
  onkey_1='blaise:gotofield(ACIALCDS_Question) '  
  onkey_2='blaise:save();runtime_ACASI_procedures.Special_backup_8'>  
  <ellipse left=45 width=460 height=60 visible=true transparent=yes FocusedBorderColor=red>  
</question> " : (Refused (2) "I don't want to answer")
```

# ACASI Module

## Basil Question Section for the Image on the ACIALCDS Screen

ACIALCDS\_Instructions

```
"<question>  
  <label top=180 text='<img src='Instructions4.bmp' transparent=true width=100 height=100 stretch=true>'  
</question>" : STRING[1], EMPTY
```



# Integrating the ACASI Module with the NHIS Instrument

- Modifications to the Blaise instrument
  - Added block to NHIS instrument
    - Defines data storage Fields and intro screens
    - Calls procedure
  - Alien procedure
    - Creates/opens Basil database
    - Calls Basil.exe passing db name & primary key
    - Transfers data from Basil db to Blaise db
    - Turns on flag to indicate ACASI completion
    - Deletes the Basil db



# Issues Developing and Deploying

- Navigation in the ACASI module
- Off path data
- Time between screens
- Deploying the instrument
- Testing the ACASI module





# Enhancements for 1,100 Case Test

- Audit trail files
  - Write records to NHIS instrument's .adt file
- Spanish
  - Basil does not support multiple languages
- Edit checks for numeric fields
  - Maniplus procedures and dialogboxes
  - Dialogbox does not play audio



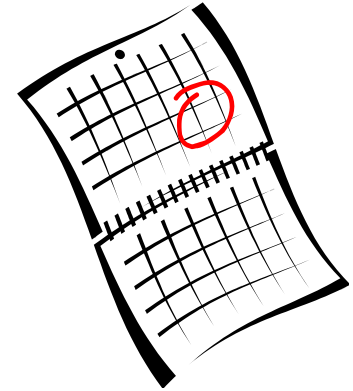
# Conclusions

- Advantages of using Basil for ACASI
  - Control over screen appearance
  - Control over what happens when certain events occur
- Disadvantages of using Basil for ACASI
  - Not as easy to program as Blaise
  - Must manage things that Blaise would handle



# Conclusions

- In retrospect:
  - Lack of experience with Basil
  - Compressed project schedule
  - Never took time to analyze the approach
  - Simply expanded on NCHS prototype
  - Code grew substantially



# Conclusions

- A new approach:
  - Generalized templates to display screens
  - Replace customized ellipse with rounded rectangle that spans the page
  - Single procedure using stack to back up
- Advantages:
  - 1/10<sup>th</sup> the code
  - Single path for English and Spanish
  - Easier maintenance



# Questions?

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“Never hold discussions with the monkey  
when the organ grinder is in the room.”

Winston Churchill

