

**Collection of hierarchical information
in the family section
of the National Health Interview Survey**

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About the National Health Interview Survey (NHIS)

**Conducted by the National Center for Health
Statistics**

First time in the field: 1957

In-person household survey

**Represents U.S. civilian noninstitutionalized
population**

3 main sections of core, since 1997

Data for each family in a household:

**Family Section: All family members
(Family Respondent answers)**

**Sample Child Section: One randomly-selected
child (knowledgeable adult answers)**

**Sample Adult Section: One randomly-selected
adult (answers for him/herself)**

**A dilemma: In what order to ask
hierarchical questions about multiple
family members**

Assume, as an example:

**Family has 3 members:
Dad, Mom, Kid**

**One adult serves as
the Family Respondent**

NHIS questions* about injuries and poisonings

**During the past 3 months,
did anyone in your family have an injury?**

Who was this?

[Get a list of family members who had an injury]

[Assume all 3 were injured]

How many times was Dad injured?

Did Dad talk to or see a medical professional about any of these injuries?

How many times was Mom injured?

Did Mom talk to or see a medical professional about any of these injuries?

How many times was Kid injured?

Did Kid talk to or see a medical professional about any of these injuries?

**[Now ask same types of questions for poisonings
as for injuries]**

**During the past 3 months,
was anyone in your family poisoned?**

[Now ask for dates when the injuries/poisonings happened, one family member at a time]

When did Dad's most recent injury/poisoning for which medical professional was consulted happen?

When did Dad's second most recent injury/poisoning...happen?

When did Mom's most recent injury/poisoning...happen?

When did Mom's second most recent injury/poisoning...happen?

[Same for Kid]

So NHIS asks about...

Medical consultations within number of injuries within family members, for injuries, then...

Medical consultations within number of poisonings within family members, for poisonings, then...

Dates of most recent injuries/poisonings within family members.

Then NHIS goes on to ask, within family members...

How the injuries/poisonings happened (verbatim)

What the causes were (e.g., burned)

What body parts (≤ 4) were hurt

**Hard to figure out actual order of questions
by reading the questionnaire!**

**Hard to program the survey instrument
correctly!**

INTERLEAFED versus GROUPED format

First: Ask ≥ 2 filter questions to determine respondent eligibility for subsequent items

Interleafed format: Subsequent items asked immediately after the relevant filter

Grouped format: Subsequent items asked after multiple filters

Format matters!

Study of mental health items found:

**Respondents to interleaved format
less likely than
respondents to grouped format
to say “yes” to later filters**

From Kreuter, McCulloch, Presser: AAPOR presentation, & forthcoming

Examples of surveys using interleaved format:

- **Behavioral Risk Factor Surveillance Survey**
- **Consumer Expenditure Survey**

Examples of surveys using grouped format:

- **National Comorbidity Survey**
- **National Crime Victimization Survey**

From Kreuter, McCulloch, Pr3sser

Experiments have shown:

Respondents gave fewer yes answers to filters as they learned that such answers led to additional questions.

From Kreuter, McCulloch, Presser

Another NHIS example: Total family income questions

≤2005: Poor item response rates

2006: New questions were tested

**≥2007: New improved questions used;
Item response rates up**

NHIS family income questions in 2005

Asked respondent to provide best estimate of total family income from all sources in last calendar year.

If not answered, asked if $\geq \$20,000$ or $< \$20,000$.

If $< \$20,000$, list of 20 intervals shown (in \$1,000 increments).

If $\geq \$20,000$, list of 24 intervals shown (in \$1,000 increments up to \$35,000, & \$5,000 increments up to \$75,000+).

NHIS family income questions in 2007

Asked respondent to provide best estimate of total family income from all sources in last calendar year.

If not answered, asked if $< \$50,000$ or $\geq \$50,000$.

If $< \$50,000$, asked if $< \$35,000$ or $\geq \$35,000$

If $< \$35,000$, asked if $<$ appropriate poverty threshold*

If $\geq \$35,000$, DONE

If $\geq \$50,000$, asked if $< \$100,000$ or $\geq \$100,000$

If $< \$100,000$, asked if $< \$75,000$ or $\geq \$75,000$

If $\geq \$100,000$, DONE**

Some recommendations from experts

- **Distrust any general recipes.**
- **Do cognitive testing:**
 - Use focus groups.**
 - Use “thinkaloud interviews.”**
 - Have a cognitive expert examine the questionnaire.**
- **Do experiments.**
- **Do a pretest.**

From Sudman, Brandburn, Schwarz: Thinking About Answers, 1996