Questionnaire length and response rates:
A nationwide experiment across three modes of administration

René Bautista, NORC at the University of Chicago
Alyson Croen, NORC at the University of Chicago
Reem Ghandour, Maternal and Child Health Bureau (MCHB), Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services

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Research Objective

• Assess the impact of questionnaire length across three modes of data collection:
  – Mail
  – Web
  – Phone
Two major surveys combined into a single survey

<table>
<thead>
<tr>
<th>National Survey of Children’s Health (NSCH)</th>
<th>National Survey of Children with Special Health Care Needs (NS-CSHCN)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key metrics:</td>
<td>Key metrics:</td>
</tr>
<tr>
<td>• Physical health</td>
<td>• Physical health</td>
</tr>
<tr>
<td>• Mental health</td>
<td>• Emotional health</td>
</tr>
<tr>
<td>• Access to quality health care</td>
<td>• Behavioral health</td>
</tr>
<tr>
<td>• Information on the child’s family</td>
<td>• Chronic conditions</td>
</tr>
<tr>
<td>• Neighborhood and social context</td>
<td>• Access to medical services</td>
</tr>
<tr>
<td></td>
<td>• Coordination of services</td>
</tr>
</tbody>
</table>
Background of Study

• Study sponsored and directed by the Maternal and Child Health Bureau (MCHB) in the Health Resources and Services Administration (HRSA) an agency of the U.S. Department of Health and Human Services (HHS)

• NSCH previously fielded by NORC as part of the State and Local Area Integrated Telephone Survey (SLAITS)

• Major re-design:
  From: Phone (aural mode)  
  To: Mail and web (visual mode)
Survey Design

• Screener
  • Prior to topical re-designed questionnaire
• 3 Topical Questionnaires
  • 3 age groups: 0-5 years, 6-11 years, 12-17 years
• Two versions: English & Spanish
• Nationally representative sample: ABS sampling
  • Included address and phone number
  • Included exact age flag indicating presence of child <18 years old
  • Sample randomly divided across modes:
    – Phone (N=9,066)
    – Mail (N=6,012)
    – Web (N=18,606)
• Data collection: January 7, 2015 - (Data as of April 14, 2015)
Survey Design

• CATI
  • Initial letter mailing
  • $10 incentive for those who qualify

• Web
  • Initial letter mailing ($1 incentive included)
  • Reminder postcard

• Mail
  • Screener packet 1 ($1 incentive included)
  • Reminder postcard
  • Screener packet 2
  • Topical packet 1 ($2 incentive included)
  • Reminder postcard
  • Topical packet 2
Questionnaire Length

• Because the goal of the NSCH Re-design was to create the best possible instrument through maximizing quality and completeness of data collected, evaluations of questionnaire length were included.

• All NSCH Re-design questionnaires were divided into two lengths:
  • Long
  • Short

• Questions eliminated for the short survey were not necessary to derive key indicators and were not essential to the survey.
Questions were removed from the following sections of the NSCH Re-design to create the short surveys:

- **Your Child’s General Health**
  - Ex: How well does each of these items describe your child?

- **Health Care Services**
  - Ex: Are you concerned about your child’s weight?

- **Experience with Your Child’s Health Care Providers**
  - Ex: During the past 12 months, were any decisions needed about your child’s health care services or treatment, such as whether to start or stop a prescription or therapy services, get a referral to a specialist, or have a medical procedure?
• Providing for your Child’s Health
  – Ex: In an average week, how many hours do you or other family members spend providing health care at home for your child? Care might include changing bandages, or giving medication and therapies when needed.

• Your Child’s Schooling and Activities
  – Ex: During the past 12 months, how often did you attend events or activities that your child participated in?

• About Your Child
  – Ex: During the past 12 months, was there someone that you could turn to for day-to-day emotional support with parenting or raising children?

• About Your Family and Household
  – Ex: When your family faces problems, how often are you likely to do each of the following?
Experimental Design

• 2 experimental versions of topical re-designed questionnaires:
  • Long vs. Short (~30% shorter)

<table>
<thead>
<tr>
<th></th>
<th>0-5 yrs</th>
<th>6-11 yrs</th>
<th>12-17 yrs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong># of Questions in Questionnaire</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long</td>
<td>318</td>
<td>304</td>
<td>318</td>
</tr>
<tr>
<td>Short</td>
<td>235</td>
<td>215</td>
<td>230</td>
</tr>
</tbody>
</table>

• Mode by Type of Questionnaire

<table>
<thead>
<tr>
<th>Mode</th>
<th>Experimental Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phone</td>
<td>Short</td>
</tr>
<tr>
<td>Mail</td>
<td>Short</td>
</tr>
<tr>
<td>Web</td>
<td>Short</td>
</tr>
<tr>
<td></td>
<td>Long</td>
</tr>
</tbody>
</table>
Experimental Design

- 3 x 2 experiment (Mode by Type of Questionnaire)
  - Participants were given the same time estimate to complete long and short instrument in Web and Phone (30 mins)
- Actual number of completes (as of 4/14/2015)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Type of Questionnaire</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short</td>
</tr>
<tr>
<td>Phone</td>
<td>223</td>
</tr>
<tr>
<td>Mail</td>
<td>179</td>
</tr>
<tr>
<td>Web</td>
<td>538</td>
</tr>
<tr>
<td>Total</td>
<td>940</td>
</tr>
</tbody>
</table>
• **Interview Completion Rate total**
  • Proportion of identified eligible households that completed the interview.

• **Council of American Survey Research Organizations (CASRO) response rate**
  • Product of the resolution rate, screener completion rate, and interview completion rate.
    - Resolution rate is the proportion of sample units that could be determined to be either a household or a non-household.
    - Screener completion rate is the proportion of determined households that were screened for household eligibility.
    - Interview completion rate is the proportion of identified eligible households that completed the interview.
Results

• Overall comparison of Short vs. Long
  • Results from a two sample t-test
    – Using $p$-value < .10 as marginally significant
    – Also, using conventional statistical levels ($p < .001$; $p < .01$; $p < .05$)

<table>
<thead>
<tr>
<th>Overall</th>
<th>Short</th>
<th>Long</th>
<th>Diff.</th>
<th>Sig.</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CASRO response rate</td>
<td>11%</td>
<td>10%</td>
<td>1%</td>
<td>Marginally</td>
<td>&lt;.10</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>significant</td>
<td></td>
</tr>
<tr>
<td>Interview completion rate</td>
<td>59%</td>
<td>56%</td>
<td>3%</td>
<td>Significant</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>
### Results

- Overall comparison of Short vs. Long by Mode

<table>
<thead>
<tr>
<th>CASRO Response Rate</th>
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<th>p-value</th>
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<tbody>
<tr>
<td>Phone</td>
<td>16%</td>
<td>15%</td>
<td>1%</td>
<td>Not significant</td>
<td>&gt;.10</td>
</tr>
<tr>
<td>Mail</td>
<td>12%</td>
<td>12%</td>
<td>0%</td>
<td>Not significant</td>
<td>&gt;.10</td>
</tr>
<tr>
<td>Web</td>
<td>9%</td>
<td>8%</td>
<td>1%</td>
<td>Not significant</td>
<td>&gt;.10</td>
</tr>
<tr>
<td>Overall</td>
<td>11%</td>
<td>10%</td>
<td>1%</td>
<td>Marginally significant</td>
<td>&lt;.10</td>
</tr>
</tbody>
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Results

• Overall comparison of Short vs. Long by Mode

<table>
<thead>
<tr>
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<th>Diff.</th>
<th>Sig.</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Mail</td>
<td>45%</td>
<td>42%</td>
<td>3%</td>
<td>Significant</td>
<td>&lt; .001</td>
</tr>
<tr>
<td>Phone</td>
<td>56%</td>
<td>51%</td>
<td>5%</td>
<td>Marginally significant</td>
<td>&lt; .10</td>
</tr>
<tr>
<td>Web</td>
<td>69%</td>
<td>67%</td>
<td>2%</td>
<td>Not significant</td>
<td>&gt; .10</td>
</tr>
<tr>
<td>Overall</td>
<td>59%</td>
<td>56%</td>
<td>3%</td>
<td>Significant</td>
<td>&lt; .001</td>
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Discussion

- Questionnaire length
  - Likely to have an impact on completion rates, but not likely to have an effect on response rates

- In terms of completion rate:
  - Likely to have a marginally significant effect in phone (~5%)
  - Likely to have a statistically significant effect in mail (~3%)

Completion

Web (No effect)  Phone (Marginally significant effect)  Mail (Significant effect)
Thank You!

Bautista-Rene@norc.org
Croen-Alyson@norc.org
Interview Completion Rate total:

\[\text{ICRT} = \frac{C}{C + M + ER + CP^*},\]

Where,

- \(C\): Completes
- \(M\): Eligible Household (but no Year or Month Information to determine age group)
- \(ER\): Eligible HH but no completes
- \(^*\): Not available
- \(CP\): Eligible and Member Selected, partial completes

CASRO Response Rate:

\[\text{CRR} = \frac{C}{C + CP + ER + M + U0*e2 + U2*e1*e2},\]

Where,

- \(U0\): Known household, unscreened
- \(e1\): Eligibility rate of Unresolved
- \(e2\): Eligibility Rate of Unscreened