The Fight Against Attrition
National Population Health Survey (NPHS)
Methodology of Longitudinal Surveys
University of Essex
12-14 July 2006

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Chief, Health Statistics Division
Statistics Canada (STC)
Outline

- NPHS
- Response rate / attrition
- The fight against attrition
- The future
NPHS

- Longitudinal Survey, started in 1994/95
- Panel size 17,276 persons
- Representative of the 1994/95 population in the 10 Canadian provinces (age-group and sex)
### Province

<table>
<thead>
<tr>
<th>Province</th>
<th>Longitudinal panel End of Cycle 1 (1994/95)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nfld.</td>
<td>1,082</td>
</tr>
<tr>
<td>P.E.I.</td>
<td>1,037</td>
</tr>
<tr>
<td>N.S.</td>
<td>1,085</td>
</tr>
<tr>
<td>N.B.</td>
<td>1,125</td>
</tr>
<tr>
<td>Qc.</td>
<td>3,000</td>
</tr>
<tr>
<td>Ont.</td>
<td>4,307</td>
</tr>
<tr>
<td>Man.</td>
<td>1,205</td>
</tr>
<tr>
<td>Sask.</td>
<td>1,168</td>
</tr>
<tr>
<td>Alta.</td>
<td>1,544</td>
</tr>
<tr>
<td>B.C.</td>
<td>1,723</td>
</tr>
<tr>
<td>Total</td>
<td>17,276</td>
</tr>
</tbody>
</table>

### Sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>Longitudinal panel End of Cycle 1 (1994/95)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>8,044</td>
</tr>
<tr>
<td>Female</td>
<td>9,232</td>
</tr>
<tr>
<td>Total</td>
<td>17,276</td>
</tr>
</tbody>
</table>

### Age Group (1994/95)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Longitudinal panel End of Cycle 1 (1994/95)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-11</td>
<td>2,022</td>
</tr>
<tr>
<td>12-19</td>
<td>1,584</td>
</tr>
<tr>
<td>20-34</td>
<td>4,220</td>
</tr>
<tr>
<td>35-54</td>
<td>5,006</td>
</tr>
<tr>
<td>55-64</td>
<td>1,704</td>
</tr>
<tr>
<td>65-74</td>
<td>1,605</td>
</tr>
<tr>
<td>75-84</td>
<td>918</td>
</tr>
<tr>
<td>85 plus</td>
<td>217</td>
</tr>
<tr>
<td>Total</td>
<td>17,276</td>
</tr>
</tbody>
</table>
Voluntary survey (participants not paid)
Biennial data collection
Cycle 1 (1994/95) … Cycle 10 (2012/13)
Questionnaire: socio-demographic, economic, health (≈50 minutes)
Six cycles completed, currently collecting Cycle 7 data
Collection

- Computer assisted telephone interview (except a portion in Cycle 1)
- Over a year: 4 quarters + 1 for non-response
- Experienced and trained interviewers from Statistics Canada
NPHS: Response Rate

Response Rate (includes deceased)

- Cycle 1*: 83.6%
- Cycle 2: 92.8%
- Cycle 3: 88.3%
- Cycle 4: 84.8%
- Cycle 5: 80.5%
- Cycle 6: 77.4%

* Cycle 1: based on initial sample (20,095)
Others: based on NPHS longitudinal panel (17,276)
NPHS: Attrition

- Lost of respondents
- Includes
  - Refusals
  - Not traced
  - Other
    - (no contact, no one home, absent for duration of the survey, language barrier, etc.)
% Attrition per type and cycle

Cycle
0% 2% 4% 6% 8% 10% 12% 14%
2 3 4 5 6
Refusal Not traced Other

NPHS
NPHS Cycle 6 Attrition per Age Group

Age Group (Cycle 1)

- 0-11
- 12-19
- 20-34
- 35-54
- 55-74
- 75+

Legend:
- Other
- Not traced
- Refusals
NPHS: the Fight Against Attrition
NPHS: Respondent material

Goals:
- Provide information
- Motivate respondents
- Promote continued participation
- Solicit partnership
- Maintain good relationships
NPHS: Respondent material

- Respondents relations team
  - Multidisciplinary
- STC web site (www.statcan.ca)
  - Info for participants of STC surveys

Before contact: Mail package

Material designed using a theme: How is Your Health?
National Population Health Survey

How's your health?

BODY MASS INDEX

The Body Mass Index (BMI) is a measure of the relationship between body weight and height used to assess the risk of developing health problems.

INSTRUCTIONS:
- One of the Metric or Imperial system
- Pull the tab to align your height with the white arrow
- Locate your weight
- Your BMI zone is at the intersection point

<table>
<thead>
<tr>
<th>ZONE</th>
<th>BMI**</th>
<th>RISK*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal</strong></td>
<td>18.5  to 25</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Normal</strong></td>
<td>18.5  to 24.9</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Normal</strong></td>
<td>18.5  to 18.4</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Normal</strong></td>
<td>Less than 18.5</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Overweight</strong></td>
<td>25.0 to 29.9</td>
<td>High</td>
</tr>
<tr>
<td><strong>Obese</strong></td>
<td>30.0 to 34.9</td>
<td>High</td>
</tr>
<tr>
<td><strong>Obese</strong></td>
<td>35.0 to 39.9</td>
<td>High</td>
</tr>
<tr>
<td><strong>Obese</strong></td>
<td>40.0 or more</td>
<td>Very high</td>
</tr>
</tbody>
</table>

*Risk of developing health problems

Note: The BMI was designed for individuals 18 years and older. It should not be used by pregnant and breastfeeding women. This tool only gives an overall indication as it does not take into account bone and muscle mass.
Mail package (before contact)
  - Introduction Letter (all cycles)
    - Cycle 7, new style, shorter (respects STC rules)
  - Brochure (all cycles, redesigned in Cycle 6)
    - Survey results, STC contact information
  - Breaking News (Cycles 6 & 7)
    - Survey results from the media across Canada
  - BMI Tool (Cycle 7)
NPHS: Respondent material

- After contact
  - Thank you letter
  - Change of address card
  - Thank you “device”
    - Calendar
    - Summary of articles
    - Fridge magnet
    - Wallet first aid kit
    - Wheel ➔ NPHS results (only if requested)
Follow-up surveys: Cycles 6 & 7

- Purpose: evaluate if documents meet their goals
- Sub-sample of NPHS field test samples
  - Selected fully completed respondents
  - \( \approx 175 \) respondents for both follow-up surveys
- 3-4 minutes questionnaire by telephone
NPHS: Follow-up Surveys

Questions

- Do they read material received from NPHS?
- Is it clear, informative, useful? Do they have suggestions?
- What is the impact on their participation?
- Do they consult STC Web site?
- Is contact via e-mail a viable option?
- Do they want info from survey (if yes what type)?
Results

- Reading: Brochure and BMI: 75%
  Breaking news: 48%
- Clear, informative and useful (BMI)
  - Yes (85%)
  - Suggestions for BMI: taken into account
- Impact on participation
  - Medium: brochure
  - Low: BMI and Breaking news
NPHS: Follow-up Surveys

- STC website for respondents rarely accessed
  - now mentioned website in intro letter, brochure and BMI tool
- Use of internet for contact → No
  - <\% with internet address
  - Difficult to capture without mistake
  - Not stable over time
NPHS: Follow-up Surveys

- Want results from survey ➔ yes
  - No distinction for type of info
  - No difference per age nor sex
  - ➔ Added a question in core questionnaire
  - ➔ Created the “wheel”
  - ➔ Created NPHS Internet Publication
    - Info on survey
    - Articles, Longitudinal data tables
    - Data access information

www.statcan.ca/bsolc/english/bsolc?catno=82-618-M
NPHS: Interviewer training

- Reference manuals
- Special presentation from Head Office
- Interview simulations
- Non-response exercises
- Reinforce importance of converting refusals and tracing
- Knowledge transfer
- Feedback: answer interviewer’s questions
NPHS: Collection procedures

- Address Register
- Monitor response rate
  - Daily / Weekly reports
  - Action taken if needed
- Collect information for tracing purpose
  - Name + phone number of two persons
  - Work phone number
- Resends
NPHS: Collection procedures

Non-response cases (NR), resent in Q3, Q4 & Q5

Nobody home, language barrier, tracing, moved outside Canada, refusal not finalised, etc.

Cycle 7

Q1 | Q2 | Q3 | Q4 | Q5

June 2006 | NR | NR | NR | June 2007
NPHS: Collection procedures

- Refusal and no contact letters
- Tracing (public means)
  - Performed by trained interviewers
    - Telephone listing
    - Canada Post Office information
    - Contact info captured during previous cycles
    - Websites
- Observation, Interviewer’s debriefing
NPHS: Processing

- Weights are adjusted for non-response and post-stratified to the 1994/95 population estimates based on the 1996 Census.
- Clean collection notes (refusals & tracing)
- Respondents removed from next cycle collection
  - “Adamant/recurrent (4 cycles)” refusals
  - “Recurrent” untraceable (5 cycles)
### NPHS: Refusals

#### Some stats from C6

<table>
<thead>
<tr>
<th></th>
<th>Full Panel (17,276)</th>
<th>Cases sent to collection in C6 (14,743)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never a refusal in all 6 cycles</td>
<td>82.3%</td>
<td>88.1%</td>
</tr>
<tr>
<td>Refusals in some cycles (including C6)</td>
<td>15.1%</td>
<td>11.9%</td>
</tr>
<tr>
<td>Refusals for all 5 cycles</td>
<td>2.6%</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Refusals conversion rate from one cycle to the next: $\approx 30\%$
Some stats from C6

- 91.9% of all cases never had a tracing final outcome code
- 0.6% have been untraceable since Cycle 2
- The rest, 7.5%, switched from traced to not traced and vice versa over the course of 5 cycles
NPHS: The future

- Redesign respondent material for Cycle 8
- Follow-up survey for refusals
- Data users
  - workshops, partnerships…
  - To help data users deal with non-response
- Do some test using control groups?
- Consider imputation?
- Suggestions, Best practices!
Contact information

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Division de la statistique de la santé
Statistique Canada