National Longitudinal Survey of Children and Youth (NLSCY) RDC Workshop

September 30 and October 1, 2008
Overview of Workshop
Day 1

• What is the NLSCY?
• Statistical concepts 1: weighting and variance estimation
• Statistical concepts 2: normalized/standardized weights, Non-response, pooling data
Overview of Workshop
Day 2

• Application of statistical concepts: Use of computers by teenagers
• Question and Answer Session
  – Questions provided in advance, if possible
What is the NLSCY?

- A long-term study of Canadian children that follows their development and well-being from birth to early adulthood.
- Conducted by Statistics Canada and funded by Human Resources and Social Development Canada (HRSDC)
Objectives of the NLSCY

- To determine the prevalence of risk and protective factors for children and youth.
- To understand how these factors, as well as life events, influence children’s development.
- To make this information available for developing policies and programs that help children and youth.
- To collect information about a wide variety of topics – biological, social, economic.
- To collect information about the environment in which a child is growing up – family, peers, school, community.
Status of NLSCY

• Six cycles of data in RDC
• Cycle 7 (2006-07) to be released this year
• Cycle 8 (2008-09) collection began September 12th.
SURVEY STEPS
Cycle 6
Survey steps – NLSCY Cycle 6

• Review of data needs (January 2003)
  – New questions for 20-21 year olds
  – New cognitive measures for 18-21 year olds
• Review of results from previous cycles
• Development of new questions
• Testing of new instruments
• Development of computerized questionnaire
Survey steps – NLSCY Cycle 6

• Field test (February 2004)
• Review of results of field test
• Adjustments to questionnaire and/or procedures
• Sampling
• Collection (September 2004-June 2005)
• Data capture and coding
Survey steps – NLSCY Cycle 6

• Processing
  – Clean up
  – Edits (flow, consistency)
  – Imputation
  – Derived variables

• Weighting and variance estimation

• Analysis

• Dissemination (December 5, 2006)
SURVEY DESIGN
SURVEY CONTENT
NLSCY Framework

Context

Resources

Family Community School Work Public Programs

Social

Family Community School Work Public Programs

Space

Outcomes

Transitions:
Illness/Injury
Accidents
Divorce/separation
Death of Family Member
Spell of Poverty
Puberty
School Entry
Graduation
First Job
Marriage
First Child

Time

Social

Physical Health

Emotional

Cognitive/Learning

Language/Communication

Context

Transitions:
Illness/Injury
Accidents
Divorce/separation
Death of Family Member
Spell of Poverty
Puberty
School Entry
Graduation
First Job
Marriage
First Child
Person Most Knowledgeable

- Person who answers questions about the child
- Usually the biological mother, but not always
- Can change from cycle to cycle

<table>
<thead>
<tr>
<th></th>
<th>PMK is biological mother</th>
<th>PMK is step, adoptive or foster mother</th>
<th>PMK is biological father</th>
<th>PMK is step adoptive or foster father</th>
<th>PMK is not a parent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-5 year olds</td>
<td>86.98%</td>
<td>0.88%</td>
<td>10.88%</td>
<td>0.08%</td>
<td>1.20%</td>
</tr>
<tr>
<td>10-17 year olds</td>
<td>89.22%</td>
<td>1.41%</td>
<td>8.30%</td>
<td>0.31%</td>
<td>0.75%</td>
</tr>
</tbody>
</table>
# Questionnaires

<table>
<thead>
<tr>
<th>PMK</th>
<th>Child/Youth</th>
<th>Teacher/Principal (cycles 1-5)</th>
<th>Teacher/Principal (cycles 1-4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Household</td>
<td>Self-Complete</td>
<td>Kindergarten</td>
</tr>
<tr>
<td></td>
<td>Adult</td>
<td>Youth component</td>
<td>Elementary</td>
</tr>
<tr>
<td></td>
<td>Child</td>
<td>Direct assessments</td>
<td></td>
</tr>
</tbody>
</table>

- Household
- Adult
- Child
- Self-Complete
- Youth component
- Direct assessments
- Kindergarten
- Elementary
Adult Component

• List of subjects covered
  • Education
  • Labour force
  • Income
  • Health
  • Family functioning
  • Neighbourhood safety
  • Social support
  • Socio-demographic characteristics
Child Component

• Created for each selected child (aged 0 to 17)

• Answered by PMK or his/her spouse
Subjects Covered by Child Component

- Education
- Health
- Medical/Biological
- Mother’s work after child’s birth
- Temperament
- Literacy
- Communication
- Activities
- Developmental Milestones
- Childcare

- Behaviour
- Sleep habits
- Motor/Social/Cognitive Development
- Relationships
- Parenting
- Custody
- Expectations (Aspirations)
- Socio-demographic characteristics
Youth Component

• Created for each selected youth (aged 16 and over)

• Only youth can answer this component
Subjects Covered by Youth Component

- Moving out of parental home
- Health
- Education
- Labour Force
- Career Aspiration
- Income
- Suicide
- Criminal behaviour
- Relationships
- Sexual Health
- Activities
- Self-esteem
- Emotional Quotient
- Social Support
Self-completes

• Created for each selected child (aged 10 to 17)
• Child / youth completes paper questionnaire in private
Subjects covered on self-completes

- Family and friends
- School
- Self-Esteem
- Emotional Intelligence
- Puberty
- Dating
- Smoking, Drinking and Drugs
- Activities
- Health
- Work
- Feelings and Behaviours (suicide)
DIRECT ASSESSMENTS
## Direct Assessments

<table>
<thead>
<tr>
<th>Age</th>
<th>Name of assessment</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-5</td>
<td>PPVT-R</td>
<td>Receptive vocabulary</td>
</tr>
<tr>
<td>4-5</td>
<td>Who Am I?</td>
<td>Level of development</td>
</tr>
<tr>
<td>4-5</td>
<td>Number Knowledge</td>
<td>Understanding of numbers</td>
</tr>
</tbody>
</table>
# Direct Assessments

<table>
<thead>
<tr>
<th>Age</th>
<th>Name of assessment</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grades 2 to 10 (usually 7 to 15 year olds)</td>
<td>Math tests</td>
<td>Achievement in basic academic skills</td>
</tr>
<tr>
<td>16-17</td>
<td>Problem solving exercise</td>
<td>Reading comprehension, problem solving, decision making</td>
</tr>
<tr>
<td>18-19</td>
<td>Literacy assessment</td>
<td>Prose literacy, Document literacy</td>
</tr>
<tr>
<td>20-21</td>
<td>Numeracy assessment</td>
<td>Numeracy</td>
</tr>
</tbody>
</table>
TEACHER AND PRINCIPAL QUESTIONNAIRES
Teacher and principal questionnaires

• Changes cycle to cycle
  – Dropped from Cycle 6 (2004) on
• Requires parental permission
• Requires co-operation from all ten provinces
• Relatively low response rates
Survey Content - Teachers

- Child/student’s education
- Child/student’s behaviour and attendance
- Involvement of parent and guardian
- Teaching practices
- Teacher’s perceptions of the school
- Personal information
Survey Content - Principals

- Students in the school
- Involvement of parent(s) and guardian(s)
- Characteristics of school
- Principal’s perceptions of the school
- Personal information
DATA ANALYSIS
Preparation

- Review NLSCY documentation
- Select/work with the data
- Identify limitations
NLSCY Documentation

- **User guides**

- **Survey overview**

- **Questionnaires**

- **Codebooks**

- **Newsletter (Window on NLSCY)**
Documentation - User Guides

• User guide for each cycle
• Provides information on:
  – Main changes since previous cycle
  – Sample
  – Content
  – Weighting
  – Data quality
  – Analytic issues
Documentation - Survey Overview

• Survey overview for each cycle
• Provides a summary of information found in User Guide
Documentation - Questionnaires

• Also known as Survey Instruments
• Contains full text of questionnaire
• Two volumes each cycle
  – Book 1 – computer assisted questionnaire, Adult, household, child and youth questionnaires
  – Book 2 – self-complete questionnaires
CONDITION (EDA_C3)

1 IF FIRSTINT = 2 (NOT THE FIRST INTERVIEW FOR THIS ADULT) Go to EDA_Q6B
2 ELSE Go to EDA_Q3

EDA_Q3 Excluding kindergarten, how many years of elementary and high school have you successfully completed?

01 No schooling Go to EDA_Q7A
02 1 to 5 years
03 6 years
04 7 years
05 8 years
06 9 years
07 10 years
08 11 years
09 12 years
10 13 years

FLOW INFORMATION IF DON’T KNOW OR REFUSAL GO TO EDA_Q7A

Coverage: PMKs and spouses with selected child age 0-17, if first interview
Documentation - Codebooks

• Provide the frequency weighted and unweighted of all variables on the file
• Coverage
• Notes about the variable
• Also includes question text
• Characteristics of variable
  – Position number, length, type
Excluding kindergarten, how many years of elementary and high school have you successfully completed?

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>No schooling</td>
</tr>
<tr>
<td>02</td>
<td>1 to 5 years</td>
</tr>
<tr>
<td>03</td>
<td>6 years</td>
</tr>
<tr>
<td>04</td>
<td>7 years</td>
</tr>
<tr>
<td>05</td>
<td>8 years</td>
</tr>
<tr>
<td>06</td>
<td>9 years</td>
</tr>
<tr>
<td>07</td>
<td>10 years</td>
</tr>
<tr>
<td>08</td>
<td>11 years</td>
</tr>
<tr>
<td>09</td>
<td>12 years</td>
</tr>
<tr>
<td>10</td>
<td>13 years</td>
</tr>
<tr>
<td>97</td>
<td>Don't know</td>
</tr>
<tr>
<td>99</td>
<td>Not stated</td>
</tr>
</tbody>
</table>

Coverage: PMK with selected child aged 0 to 5 years old

Note: If firstint = 2 (Not the first interview for this adult in Cycle 6), data have been carried forward from previous cycles when available or set based on FEDPeQ4B.
Documentation - Newsletter

- Window on NLSCY
- Newsletter for NLSCY data users
- Two volumes so far
- Information about what is happening on survey
- Would like to hear from users
Work with the data

- target population
  - Longitudinal vs. cross-sectional
- respondents vs. non-respondents
- weights
Data – Cycle 6

• Four data files:
  – Longitudinal cohort (10-17 year olds) – Adult, Child and Household:
    NLSCY2004_C6_LONG_REV_Master.txt
  – Longitudinal cohort (16-21 year olds) – Youth:
    NLSCY2004_C6_YOUTH_Master.txt
  – ECD file (0-5 year olds):
    NLSCY2004_C6_ECD_REV_Master.txt
  – Self-complete file (10-17 year olds):
    NLSCY2004_C6_1017_Master

• Bootstrap files

• File structure changed over cycles need to check documentation
Things to consider

- Unit of analysis
- Attrition and non response
- Changes across cycles
  - sample sizes
  - age
  - content
Unit of Analysis

• Unit of analysis is the child
• Weights are designed for the child
• Concepts like family are characteristics of the child – not a domain for estimation
Unit of Analysis

• Caution

Statements like . . .

The NLSCY estimates the number of children whose families have characteristic . . .

The NLSCY estimates number of families with characteristic . . .
RESPONSE RATES
Cumulative household response rates for the original cohort

<table>
<thead>
<tr>
<th>Survey Cycle</th>
<th>Age Range (years)</th>
<th>Sample Size (hhlds)</th>
<th>Respondents (hhlds)</th>
<th>Respondents (children)</th>
<th>Response Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0-11</td>
<td>18,163</td>
<td>11,141</td>
<td>(16,903)</td>
<td>86.9</td>
</tr>
<tr>
<td>2</td>
<td>2-13</td>
<td>18,210</td>
<td>10,262</td>
<td>(15,472)</td>
<td>79.8</td>
</tr>
<tr>
<td>3</td>
<td>4-15</td>
<td>18,165</td>
<td>9,933</td>
<td>(14,997)</td>
<td>77.5</td>
</tr>
<tr>
<td>4</td>
<td>6-17</td>
<td>18,265</td>
<td>8,962</td>
<td>(13,361)</td>
<td>69.4</td>
</tr>
<tr>
<td>5</td>
<td>8-19</td>
<td>18,481</td>
<td>8,744</td>
<td>(12,535)</td>
<td>66.6</td>
</tr>
<tr>
<td>6</td>
<td>10-21</td>
<td>18,885</td>
<td>8,409</td>
<td>(11,483)</td>
<td>62.1</td>
</tr>
</tbody>
</table>
### Unweighted Cross-sectional Response Rates by Effective Age – Cycle 6

<table>
<thead>
<tr>
<th>Effective Age</th>
<th>In-scope sample</th>
<th>Respondents</th>
<th>Response Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 and 1</td>
<td>4,343</td>
<td>3,521</td>
<td>81.1</td>
</tr>
<tr>
<td>2 and 3</td>
<td>3,955</td>
<td>3,461</td>
<td>87.5</td>
</tr>
<tr>
<td>4 and 5</td>
<td>4,011</td>
<td>3,532</td>
<td>88.1</td>
</tr>
<tr>
<td>Total</td>
<td>12,309</td>
<td>10,514</td>
<td>85.4</td>
</tr>
</tbody>
</table>
CHANGES ACROSS CYCLES
The NLSCY sample: relative sizes

- 0-1: 4050
- 2-3: 4150
- 4-5: 8125
- 6-7: 3840
- 8-9: 2820
- 10-11: 3020
- 12-13: 2800
- 14-15: 2975
- 16-17: 6340
- 18-19: 2800
- 20-21: 1400

Statistics Canada

Statistique Canada
Effective age

- Age used to determine which questions are asked
- Calculated by year of birth
- Cycle 6 effective age = 2004 – year of birth
- Could be different than actual age
- Both variables are on file:
  - effective age = FMMCQ01; actual age = FMMCbQ1A
Distribution of age in months

Sample sizes by "actual age in months at time of interview". The interview in question is the one where the behavior scales were measured at ages 2-3 (effective age).

Actual age in months

Sample size

C3 birth - DMMCdQ1B
C4 birth - EMMCdQ1B
C5 birth - FMMCdQ1B
Content changes over cycles

• Two main types of changes:
  – Change to a question between cycles
  – Change in how a concept measured as child ages

• Content changes for many reasons:
  – To correct errors
  – To adapt to changes (for example, adding questions about Internet use)
  – To reflect emerging interests
Content Changes with Age of Respondent

Question for 16-17 year old (Cycle 5)

LFSC_Q1A  At any time since September 1st, did you do any paid or unpaid work in your family's business or farm?

1  Yes
2  No

Question for 18-19 year olds (Cycle 6)

LFSY_Q01  Have you worked at a job or business for pay (or profit) at any time in the past 12 months, including working in your family's business or farm, babysitting or paid co-op or work placement? (For example at a store or restaurant, running your own business or odd jobs (such as babysitting)).

1  Yes
2  No
Change Between Cycles

Cycle 5

HLT_Q47A Since ^YOUR1 birth, has ^YOU1 had an ear infection (otitis)?
1 Yes
2 No..............................go to HLT_Q48A

FLOW INFORMATION IF DON'T KNOW OR REFUSAL GO TO HLT_Q48A
Universe: Children aged 0-3 years old

HLT_Q47B How many times?
1 Once
2 2 times
3 3 times
4 4 or more times

Universe: Children aged 0-3 years old who have had an ear infection

Cycle 6

HLT_Q47A Since his / her birth, has he / she had an ear infection (otitis)?
1 Yes
2 No..............................Go to HLT_Q48A

FLOW INFORMATION IF DON'T KNOW OR REFUSAL GO TO HLT_Q48A
Coverage: Children aged 0-3 years old

HLT_Q47B How many times? [Min: 1 Max: 30]
Coverage: Children aged 0-3 years old who have had an ear infection
### EHLCQ47B (Position: 841, Length: 1)

**Variable Name:** EHLCQ47B  
**Collection Name:** HLTQ47B

**How many times?**

1. Once
2. 2 times
3. 3 times
4. 4 or more times
5. Valid skip
6. Don't know
7. Not stated

**Coverage:** Children aged 0-3 years old who have had an ear infection

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### FHL Cf47B (Position: 836, Length: 2)

**Variable Name:** FHL Cf47B  
**Collection Name:** HLTQ47B

**How many times**

**Allowed values:**

01 : 30

01 : 30  Number of ear infections
96   Valid skip
97   Don't know
99   Not stated

**Coverage:** Children aged 0 to 3 years old who have had an ear infection
FUTURE OF THE NLSCY
NLSCY Sample Cycles 7 and 8

0-1  2-3  4-5  6-7  8-9

12  Cycle 7 2006  23

14  Cycle 8 2008  25
Next generation of children’s surveys

• Longitudinal survey options:
  Continue to follow original NLSCY cohorts in their adult trajectories
  Stop following the original cohort and reinvest in a new birth cohort
  Conduct a series of smaller longitudinal studies targeted at specific groups
Next generation of children’s surveys

Cross-sectional options

• New cross-sectional survey of 0 to 5 year olds
• New cross-sectional survey of 0 to 18 year olds
  • 0-18 in one survey year
  • Or spread over three survey years
    (0-5, 6-12, 13-18)