



AGENCY FOR HEALTHCARE RESEARCH AND QUALITY



# **MEPS – HC: Longitudinal and Other Selected Analytic Approach Options**

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# Overview

- **Longitudinal analysis of MEPS panels**
- **Family-level estimation**
- **Other miscellaneous**
  - Medical event as unit of analysis
  - State-level estimation
  - MEPS supplement surveys

# Longitudinal Analysis of MEPS Panels

# MEPS Longitudinal Analysis

## Example:

### Panel 21 (2016-2017)



# MEPS Longitudinal Analysis



- **National estimates of person-level changes over two-year period**
- **Examine characteristics associated with changes over time**

# Variables that may change between years or rounds

- **Insurance coverage**
  - Monthly indicators (24 measures)
  - Annual summary (2 measures per person)
- **Health status**
  - Each round (5 measures)
- **Having a usual source of care**
  - Rounds 2 & 4 (2 measures)
- **Use and expenditures**
  - Annual (2 measures per person)

# Longitudinal weight (LONGWT)

- Longitudinal weight is derived for persons with responses for entire period in scope, during the two years
- Produces national estimates for persons in two consecutive years
- For Panel 21 (2016-2017) . . .

LONGWT > 0	All 5 Rounds	Participated for entire period in-scope (not all 5 rounds)
15,617	14,431 (92.4%)	1,186 (7.6%)

# Selection of cases for analysis

Variable	Description
YEARIND	1=both years, 2=in 2016 only, and 3=in 2017 only
ALL5RDS	In-scope and data collected in all 5 rounds (0=no, 1=yes)
DIED	Died during the two-year survey period (0=no, 1=yes)
INST	Institutionalized for some time during the two-year survey period (0=no, 1=yes)
MILITARY	Active duty military for some time during the two-year survey period (0=no, 1=yes)
ENTRSRVY	Entered survey after beginning of panel (mainly births; also includes persons who had no initial chance of selection who moved into a MEPS sample household) (0=no, 1=yes)
LEFTUS	Moved out of the country after beginning of panel (0=no, 1=yes)
OTHER	Not identified in any of the above analytic groups (0=no, 1=yes)



# Estimates from the Panel 19 longitudinal file



## Examples:

- Of those uninsured throughout 2016, an estimated 66.9% were also uninsured throughout 2017.
- An estimated 4.9% of the population had no insurance throughout 2016 / 2017.
- Of those with no expenses for health care in 2016, an estimated 45.6% had some expenses in 2017.

# MEPS longitudinal files (Panels 13-20)

	<b>Panel 14 (09-10)</b>	<b>Panel 15 (10-11)</b>	<b>Panel 16 (11-12)</b>	<b>Panel 17 (12-13)</b>	<b>Panel 18 (13-14)</b>	<b>Panel 19 (14-15)</b>	<b>Panel 20 (15-16)</b>	<b>Panel 21 (16-17)</b>
<b>File Number</b>	HC-139	HC-148	HC-156	HC-164	HC-172	HC-183	HC-193	HC-202
<b>Number of Persons</b>	16,221	14,541	18,512	17,293	16,714	15,898	17,017	15,617

# Extending the longitudinal period: MEPS-NHIS



- **MEPS-HC is nationally representative subsample of responding households from previous year's National Health Interview Survey (NHIS)**
  - Prior year NHIS data available for many MEPS respondents
- **MEPS/NHIS link file**
  - Crosswalk to merge MEPS full-year public use data to NHIS person-level public use data
  - Crosswalk file not public use; available in data center

# Extending the longitudinal period: MEPS-NHIS

2015		2016		2017
		MEPS Panel 20 Year 2		
NHIS 2015	➡	MEPS Panel 21 Year 1		MEPS Panel 21 Year 2
		NHIS 2016	➡	MEPS Panel 22 Year 1

# Linked files, weighting, and estimation



- **Linking the two surveys expands the analytic capabilities**
- **Not all MEPS respondents link (birth, marriage, etc.)**
- **Weighting adjustment for non-linkage is recommended**
- **Informational resources**

2012 ASA proceedings paper (Chowdhury, Machlin, and Wun)

[https://meps.ahrq.gov/mepsweb/data\\_stats/Pub\\_ProdResults\\_Details.jsp?pt=Conference+Proceedings&opt=3&id=1241](https://meps.ahrq.gov/mepsweb/data_stats/Pub_ProdResults_Details.jsp?pt=Conference+Proceedings&opt=3&id=1241)

2013 FCSM proceedings paper (Mirel and Machlin)

[https://s3.amazonaws.com/sitesusa/wp-content/uploads/sites/242/2014/05/H2\\_Mirel\\_2013FCSM.pdf](https://s3.amazonaws.com/sitesusa/wp-content/uploads/sites/242/2014/05/H2_Mirel_2013FCSM.pdf)

# Family-Level Estimation

# Family-level estimation

- **Create family-level file from person-level file**  
(see documentation)
- **Two family type options**
  - MEPS: includes unmarried couples and foster children
  - CPS: unmarried couples not family unit
- **Two time frame options**
  - December 31 (MEPS, CPS)
  - Any time during year (MEPS only)

# Family sample sizes, 2017 (MEPS annual household file)

<b>Number of families</b>	<b>MEPS</b> Anytime during year	<b>MEPS</b> December 31	<b>CPS</b> December 31
Unweighted	12,756	12,667	13,370
Weighted (millions)	139.2	138.0	144.1
<b>Family Weight Variable Name</b>	FAMWT17F	FAMWT17F (subset to FMRS1231=1)	FAMWT17C



# Family-level estimation

## Example: Average total health care expenses per MEPS family by family size, 2017

- Based on MEPS families in scope at any time during the year
- Average number of persons per family is about 2.3

Family size	Estimate	SE
All	\$12,061	\$271
1	\$8,130	\$286
2	\$14,805	\$506
3	\$14,440	\$672
4	\$13,933	\$1,161
5+	\$12,244	\$601

# **Other Miscellaneous Analytic Options**

# Medical event as unit of analysis



- **Event files can be used to estimate average expense per event**
- **Some estimates available in HC Summary Tables on MEPS website**

**Example:**

**In 2017,**

**...the mean expense per office visit to a physician was \$265 (SE=\$7).**

**...the mean expense per ER visit was \$1,016 (SE=\$30).**

**...the mean expense per inpatient stay was \$14,892 (SE=\$757).**

# State-level estimation

- **Considerable interest in State-level estimates**
- **MEPS sample not designed for producing estimates for all States**
  - Small sample sizes
  - Insufficient PSUs for variance estimation
- **Public Use File (PUF) does not include State identifiers to protect confidentiality**
  - Tables and reports available on website for larger States (selected estimates)
  - Access to identifiers in Data Center
    - *Need to use state-level sample design and state identifiers*

# MEPS-HC Supplements



- **Special supplement variables on person-level files**
- **Consult documentation for appropriate weight**
  - Self Administered Questionnaire (SAQ) → SAQWTyyF
  - Diabetes Care Survey (DCS) → DIABWyyF
  - Cancer SAQ (CSAQ) → CSAQWyyF

➤ *For MEPS full-year files 2011, 2016, and 2017 only*

# Medical Organization Survey (MOS)



- **Data on organizational / financial characteristics of office-based usual source of care providers.**
- **Nationally representative of persons who visited their usual source of care (USC) 1+ times in 2016.**
  - For example, a USC was an independent practice for about 55% of persons who visited their usual source of care provider in 2016.
- **MOS variables (including MOS weight) must be merged onto the full year person-level file**
  - this is different from the other supplemental variables (e.g., SAQ)
  - 2015 full year MOS file → HC-182
  - 2016 full year MOS file → HC-187