

AGENCY FOR HEALTHCARE RESEARCH AND QUALITY

AHRQ

# MEPS-HC
# Medical Conditions Data

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# Medical Conditions Data

## Priority conditions

- Person-level variables on the Full-Year Consolidated (FYC) PUF
- Set of 15 pre-determined conditions that are asked about for all eligible sample members

## Current (treated) conditions

- Condition-level data on the Medical Conditions PUF
- Open-ended reporting of conditions at certain points in MEPS interview

# Priority Conditions

| Condition | Age Group | Reference Period | Diagnosis Variable(s) |
|---|---|---|---|
| Hypertension | 18+ | Lifetime | HIBPDX, BPMLDX |
| Coronary Heart Disease | 18+ | Lifetime | CHDDX |
| Angina | 18+ | Lifetime | ANGIDX |
| Heart Attack | 18+ | Lifetime | MIDX |
| Other heart disease | 18+ | Lifetime | OHRTDX |
| Stroke/TIA | 18+ | Lifetime | STRKDX |
| Emphysema | 18+ | Lifetime | EMPHDX |
| High Cholesterol | 18+ | Lifetime | CHOLDX |
| Cancer | 18+ | Lifetime | CANCERDX |
| Diabetes | All | Lifetime | DIABDX_M18 |
| Arthritis | 18+ | Lifetime | ARTHDX |
| Asthma | All | Lifetime | ASTHDX |
| ADHD | 5-17 | Lifetime | ADHDADDX |
| Chronic Bronchitis | 18+ | Past 12 months | CHBRON31 |
| Joint Pain | 18+ | Past 12 months | JTPAIN31_M18 |

# Current (Treated) Conditions

Open-ended reporting of conditions at different points in the MEPS-HC interview, including:

| | |
|---|---|
| Medical Events | **Main source of condition data (100% starting in 2018)** |
| Condition Enumeration | **1996–2017 (discontinued in Panel 21 Round 5 and Panel 22 Round 3)** |
| Disability Days | **1996–2012 (discontinued in 2013)** |

# Medical Event Condition Questions

| | |
|---|---|
| **"What conditions were discovered or led (PERSON) to make this visit?"** | • Hospital inpatient stays<br>• Hospital outpatient visits<br>• Emergency room visits<br>• Office-based medical provider visits<br>• Home health visits |
| **"What health problem is (MEDICINE) prescribed for?"** | • Prescribed medicines |

# Recording and Coding Conditions

| Lookup Tool | Verbatim Text |
| --- | --- |
| • Implemented in 2020<br>• Pre-programmed, searchable list of commonly reported conditions<br>• Automatically assigns an ICD-10 code to entries | • Used when a reported condition is not in condition lookup tool<br>• Professional coders manually review text strings and assign ICD-10 codes |

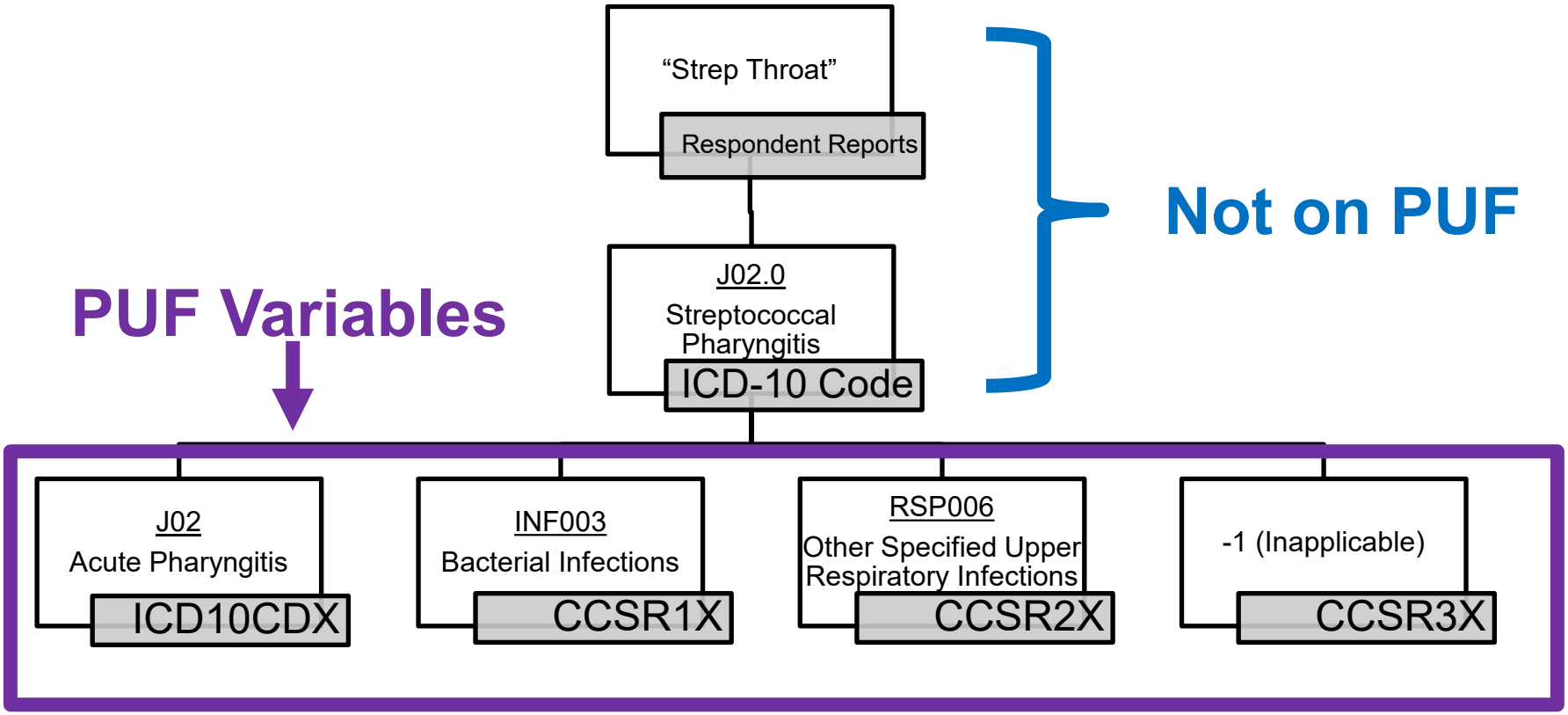
# Medical Conditions PUF

- Each record is a unique combination of person and condition
- Not everyone on the FYC will have condition records
- The Medical Conditions PUF can be linked to:
  - Medical event files using the conditions-event link (CLNK) file
  - FYC (person-level) file using DUPERSID
- To protect respondent confidentiality:
  - ICD-10 codes are truncated to the first 3 digits
  - Some conditions are masked (to -15) or recoded to broader condition categories

# Medical Conditions PUF

- Contents
  - CONDIDX: unique condition identifier for a person
  - DUPERSID: unique person identifier
  - ICD10CDX: 3-digit ICD-10 code (ICD-9 prior to 2016)
  - CCSR1X, CCSR2X, CCSR3X: CCSR codes (CCS code prior to 2016)
  - **NUM variables: number of CLNK records of that type (e.g., ERNUM for ER visits) a condition links to
  - CRND variables: if person reported condition in round
  - Person-level analysis weight and design variables

# Example: ICD-10 and CCSRs

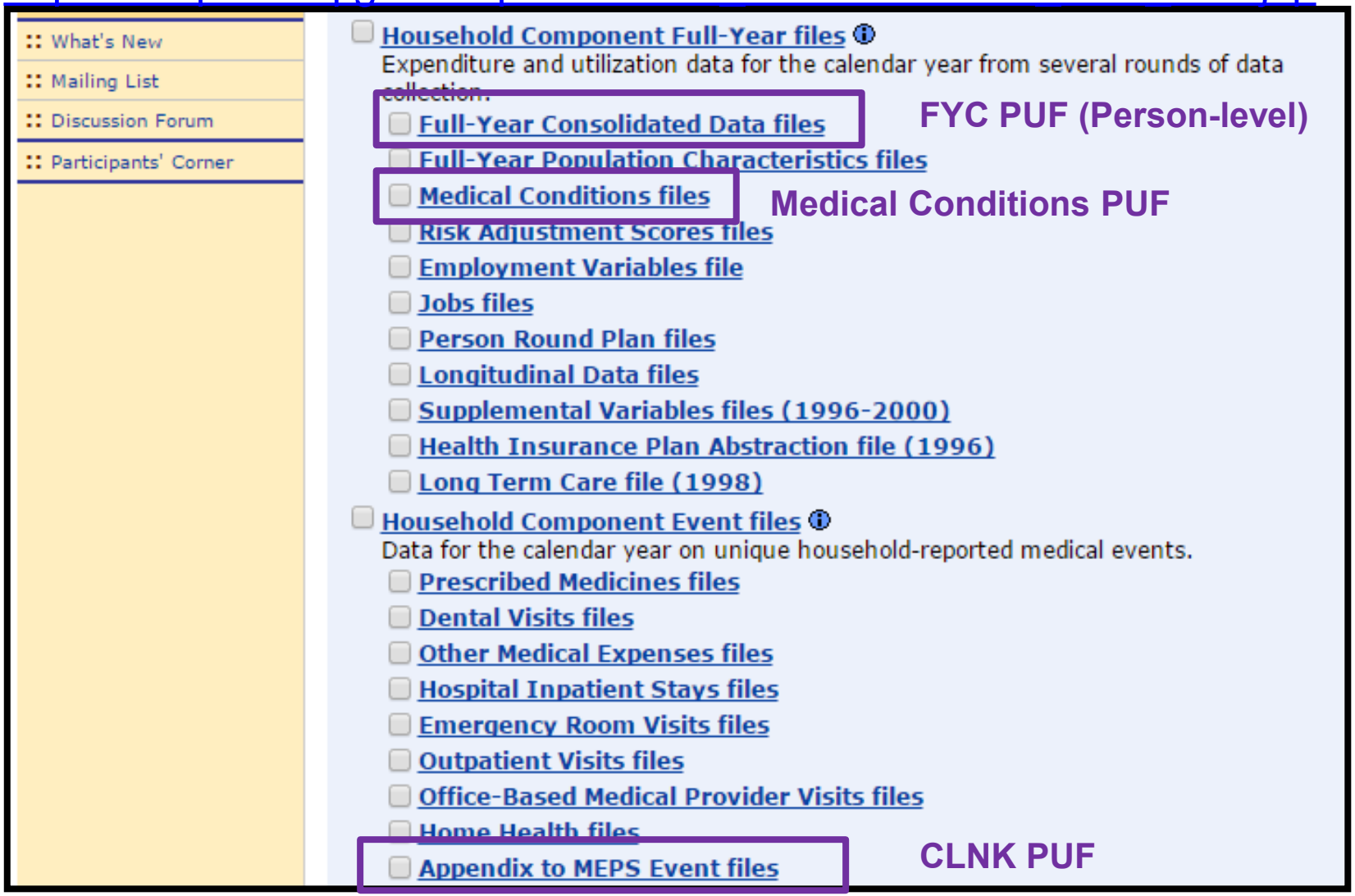


# Conditions-Event Link (CLNK) File

- Crosswalk between condition IDs (CONDIDX) and event IDs (EVNTIDX) used to link medical conditions to medical events (and vice versa)
  - For example, to obtain expenditures by payer for healthcare associated with a specific condition
- EVENTYPE on the CLNK indicates the type of medical event
- Many-to-many matching is possible
  - One condition can link to multiple events
  - One event can link to multiple conditions
  - Some events don't link to any conditions
  - Beginning in 2018 all conditions link to events

# Data Files

https://meps.ahrq.gov/mepsweb/data_stats/download_data_files.jsp



# Example: Linking Conditions to Events

## Conditions File

| DUPERSID | CONDIDX | ICD10CDX | HHNUM | IPNUM | OPNUM | OBNUM | ERNUM | RXNUM |
|---|---|---|---|---|---|---|---|---|
| 2510001101 | 2510001101001 | J00 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2510001101 | 2510001101002 | M76 | 0 | 0 | 0 | 1 | 0 | 0 |
| 2510001101 | 2510001101003 | H52 | 0 | 0 | 0 | 4 | 0 | 0 |

## CLNK File

| DUPERSID | CONDIDX | EVNTIDX | EVENTYPE |
|---|---|---|---|
| 2510001101 | 2510001101001 | 2510001101001103 | 8 |
| 2510001101 | 2510001101002 | 2510001101200101 | 1 |
| 2510001101 | 2510001101003 | 2510001101200201 | 1 |
| 2510001101 | 2510001101003 | 2510001101200301 | 1 |
| 2510001101 | 2510001101003 | 2510001101200401 | 1 |
| 2510001101 | 2510001101003 | 2510001101200501 | 1 |

## OB File

| DUPERSID | EVNTIDX |
|---|---|
| 2510001101 | 2510001101200101 |
| 2510001101 | 2510001101200201 |
| 2510001101 | 2510001101200301 |
| 2510001101 | 2510001101200401 |
| 2510001101 | 2510001101200501 |

# Example: Linking Conditions to Events

## Conditions File

| DUPERSID | CONDIDX | ICD10CDX | HHNUM | IPNUM | OPNUM | OBNUM | ERNUM | RXNUM |
|---|---|---|---|---|---|---|---|---|
| 2510001101 | 2510001101001 | J00 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2510001101 | 2510001101002 | M76 | 0 | 0 | 0 | 1 | 0 | 0 |
| 2510001101 | 2510001101003 | H52 | 0 | 0 | 0 | 4 | 0 | 0 |

## CLNK File

| DUPERSID | CONDIDX | EVNTIDX | EVENT YPE |
|---|---|---|---|
| 2510001101 | 2510001101001 | 2510001101001103 | 8 |
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## OB File

| DUPERSID | EVNTIDX |
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| 2510001101 | 2510001101200201 |
| 2510001101 | 2510001101200301 |
| 2510001101 | 2510001101200401 |
| 2510001101 | 2510001101200501 |

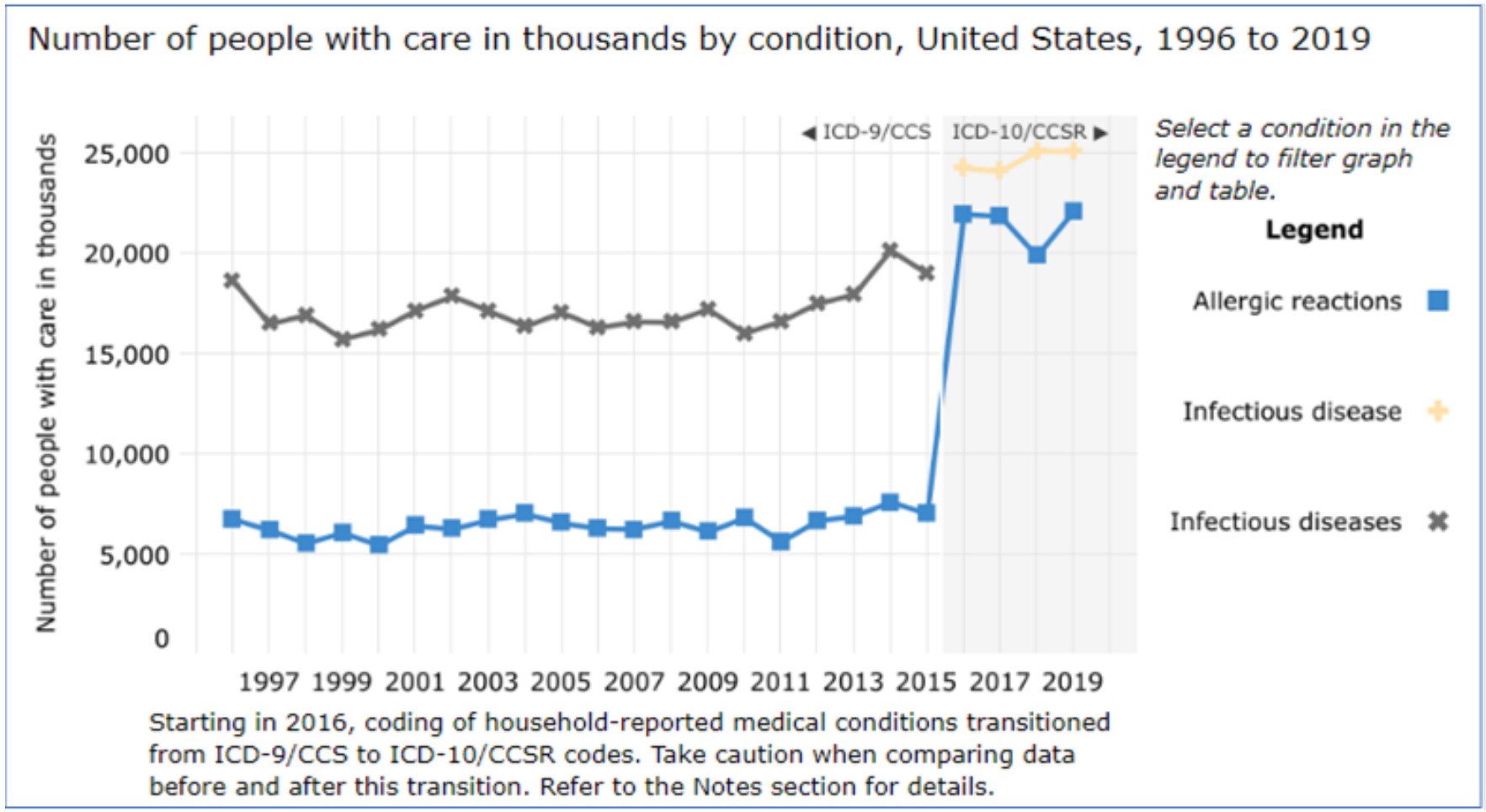
# Caveats and Limitations

- MEPS can be used to produce “treated prevalence” estimates for conditions but not overall disease prevalence estimates
- Potential underreporting of conditions
  - Open-ended reporting lacks prompting of conditions
  - Recall error, especially if condition not salient
  - One respondent per household
  - Sensitive conditions underreported in surveys
  - No medical care received
- All conditions are household-reported
  - MEPS does not use information from the MPC to create new condition records or to edit household-reported conditions
- Some reported text strings cannot be easily coded
  - For example, reports of “pain” or “injury”

# Practical Tips

- Exercise extreme caution when pooling or trending across the ICD-9 to ICD-10 transition
  - ICD-9/CCS and ICD-10/CCSR are fundamentally different coding schemes
  - Changes may be due to changes in the underlying coding scheme and not true changes in the population
  - ICD-10 codes can map to multiple CCSRs whereas ICD-9 codes only map to one CCS

# Analyzing Trends Across the ICD-9 to ICD-10 Transition



# Practical Tips

- There can be 'duplicate' condition records with unique CONDIDXs for a given person
  - This usually happens when the fully specified ICD-10 codes are different, but collapse to the same 3-digits and map to the same CCSR pattern
  - Look out for these when programming, especially if merging or summing!

**PUF Variables**

| Respondent Reported | Full ICD10 | ICD10 CDX | CCSR1X | CCSR2X | CCSR3X | CONDIDX |
|---|---|---|---|---|---|---|
| "High cholesterol" | E78.5 | E78 | END010 | -1 | -1 | 2510001101**004** |
| "High triglycerides" | E78.1 | E78 | END010 | -1 | -1 | 2510001101**005** |

# Practical Tips

- **NUM variables on the Conditions files should not be used to estimate healthcare utilization
- MEPS is not useful for distinguishing between Type 1 and Type 2 diabetes
- The MEPS medical conditions PUFs are not useful for studying rare conditions
  - Access the restricted data and pool multiple years
- For comparability before and after 2018, subset pre-2018 medical conditions files to only those conditions linked to a medical event

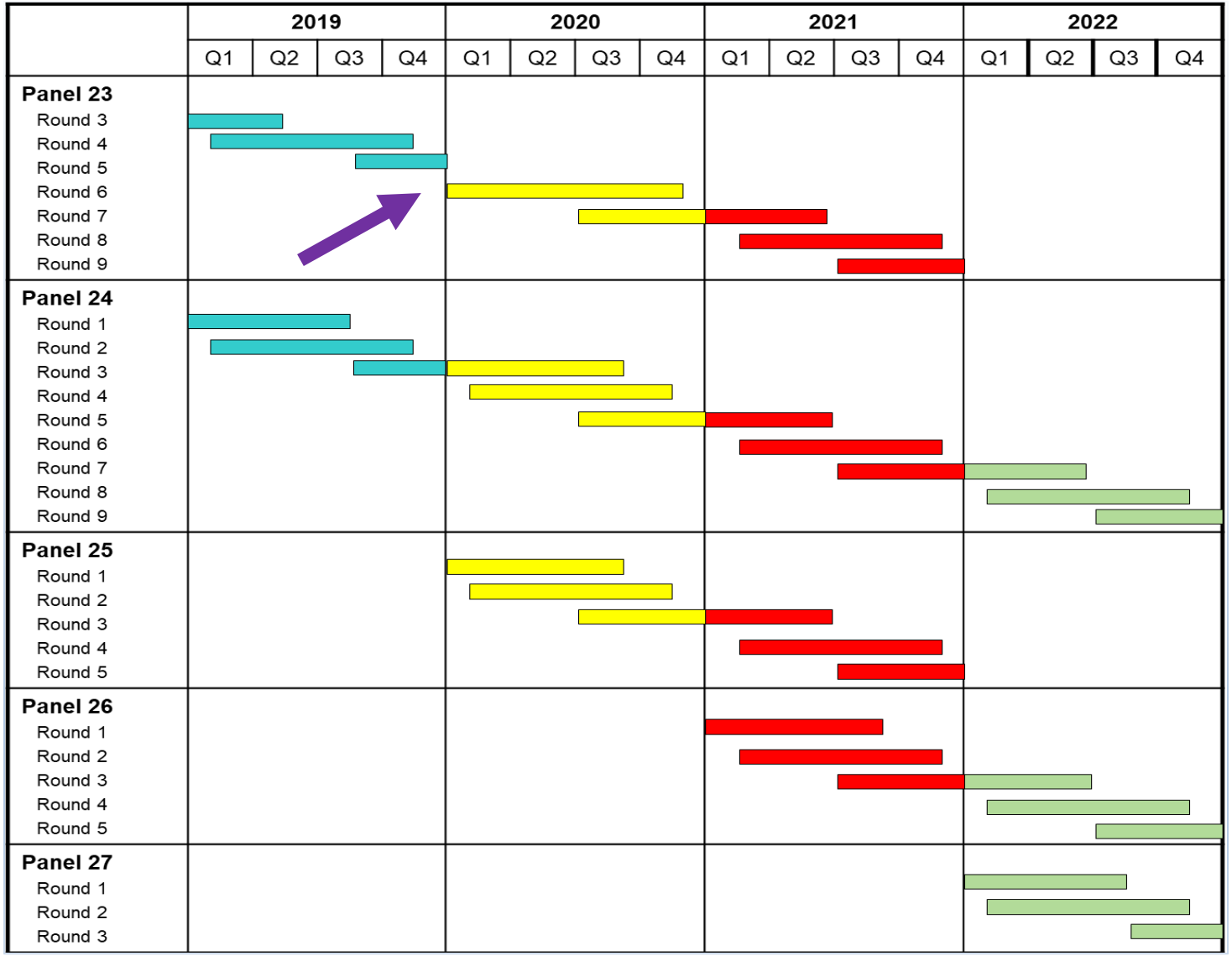
# Practical Tips

- Priority conditions are not included on the medical conditions file unless the condition is also reported as current
  - For 2018 onward this means the condition must be associated with a medical event in the data year
- If analyzing priority conditions, limit analyses to 2008 and later years
  - The priority conditions questions were significantly changed starting in 2007

# COVID-19

- COVID-19 introduced significant disruptions to:
  - Face-to-face data collections like MEPS-HC
    - See previous presentation
  - The actual healthcare landscape
- Priority Conditions on the 2020 FYC PUF:
  - Asked in odd rounds except the final round of a panel
  - Not asked in Panel 23 Round 5 (what would have normally been the last round of the panel covering 2018-2019 before Panel 23 was extended)

# MEPS Panel Design: Data Reference Periods




https://meps.ahrq.gov/mepsweb/survey_comp/hc_data_collection.jsp

# COVID-19

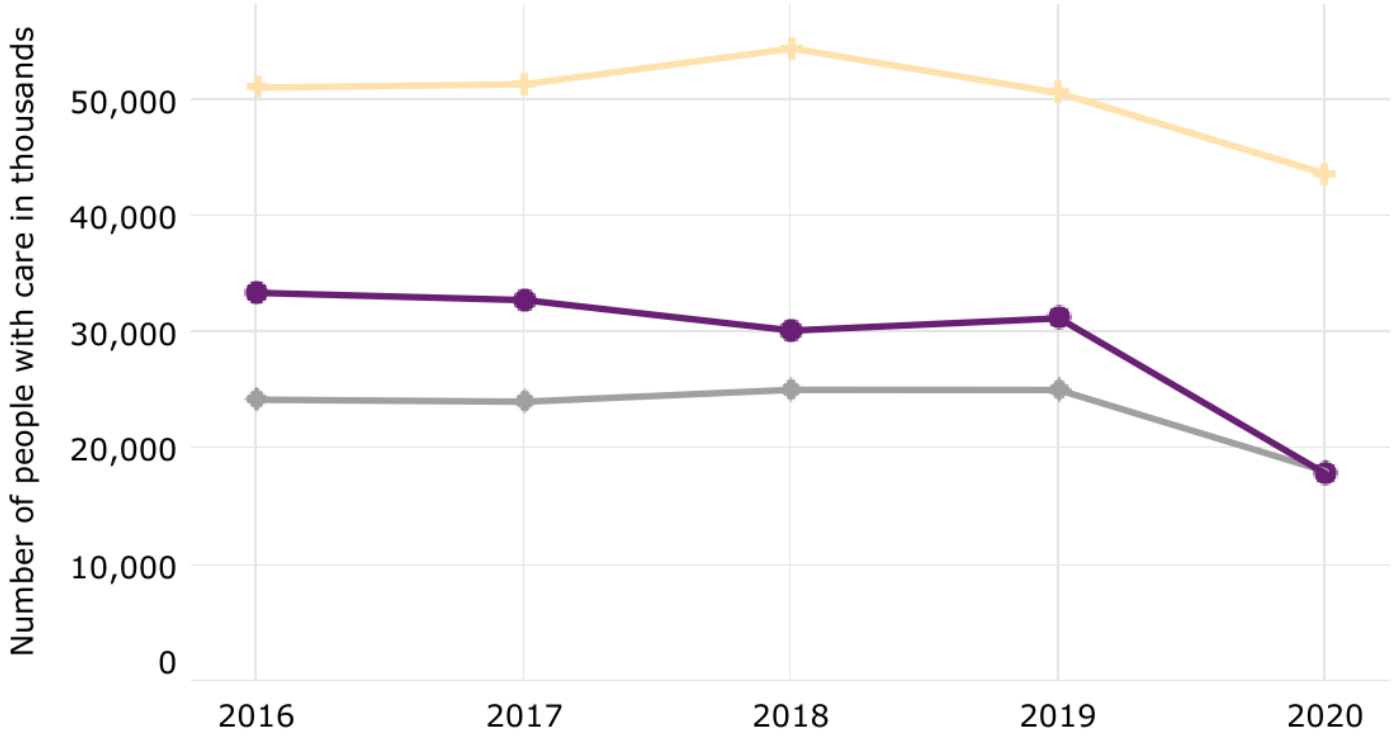
- 2020 Medical Conditions PUF:
  - New ICD-10 codes have been released throughout the pandemic (and new CCSR codes as a result)
    - Some ICD-10 codes were applied to conditions reported before those ICD-10 codes became effective
    - Some relevant ICD-10 codes were released after coding took place
  - Conditions related to COVID-19 were added to the CAPI condition lookup tool in fall 2020 and spring 2021
  - MEPS condition data stem from healthcare utilization, which was significantly disrupted in 2020
  - COVID-19 testing was limited early in the pandemic
  - Healthcare for non-covid conditions was affected too!

# COVID-19 ICD-10 Coding for 2020 Medical Conditions Data

| Respondent Reports | MEPS ICD-10 Code |
|---|---|
| COVID-19 confirmed or positive test | U07.1 |
| COVID-19 presumed or suspected | Reason for encounter (e.g., fever, cough, exposure to covid) |
| COVID-19 testing (result unknown or negative) | Z20.822 |
| COVID-19 exposure | Z20.822 |
| Multisystem inflammatory syndrome with COVID-19 present | U07.1 |
| Multisystem inflammatory syndrome without COVID-19 present | M35.89 |
| Respiratory manifestation of COVID-19 (e.g., covid pneumonia) | U07.1 |
| Pregnancy/childbirth with COVID-19 | O98.5 |
| COVID-19 vaccination | Z23 |

# Example: Trends in non-COVID Conditions

Number of people with care in thousands by condition, United States, 2016 to 2020




*Select a condition in the legend to filter graph and table.*

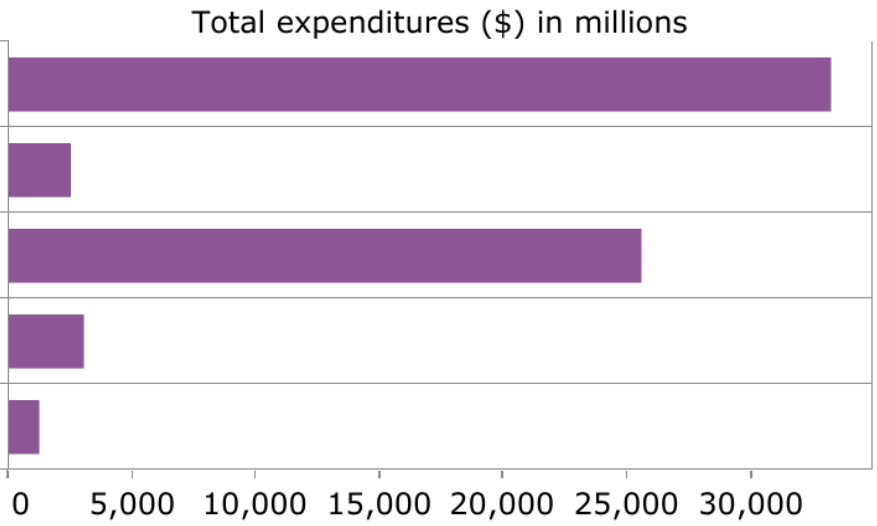
**Legend**

- Acute Bronchitis and URI
- Infectious disease
- Osteoarthritis and other non-traumatic joint disorders

# Example of MEPS COVID-19 Estimates

Total expenditures ($) in millions by condition and event type, United States, 2020

| Group Level | Medical Condition |
|---|---|
| Any event | Coronavirus disease (COVID-19) ** |
| Emergency room visits | Coronavirus disease (COVID-19) ** |
| Inpatient stays | Coronavirus disease (COVID-19) ** |
| Office-based events | Coronavirus disease (COVID-19) ** |
| Outpatient events | Coronavirus disease (COVID-19) ** |



# Resources

- Public use file documentation
- MEPS-HC online data tools
- MEPS GitHub (includes example code in R, SAS, and Stata)
- The Impacts of the COVID-19 Pandemic on the Medical Expenditure Panel Survey
- Analyzing Medical Conditions in MEPS: User Guide and Detailed Reference (NEW!)

# Thank you!

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