

AGENCY FOR HEALTHCARE RESEARCH AND QUALITY



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
- Hospital outpatient visits
- Emergency room visits
- Office-based medical provider visits
- Home health visits

“What health problem is (MEDICINE) prescribed for?”

- Prescribed medicines

Recording and Coding Conditions

Lookup Tool

- Implemented in 2020
- Pre-programmed, searchable list of commonly reported conditions
- Automatically assigns an ICD-10 code to entries

Verbatim Text

- Used when a reported condition is not in condition lookup tool
- Professional coders manually review text strings and assign ICD-10 codes

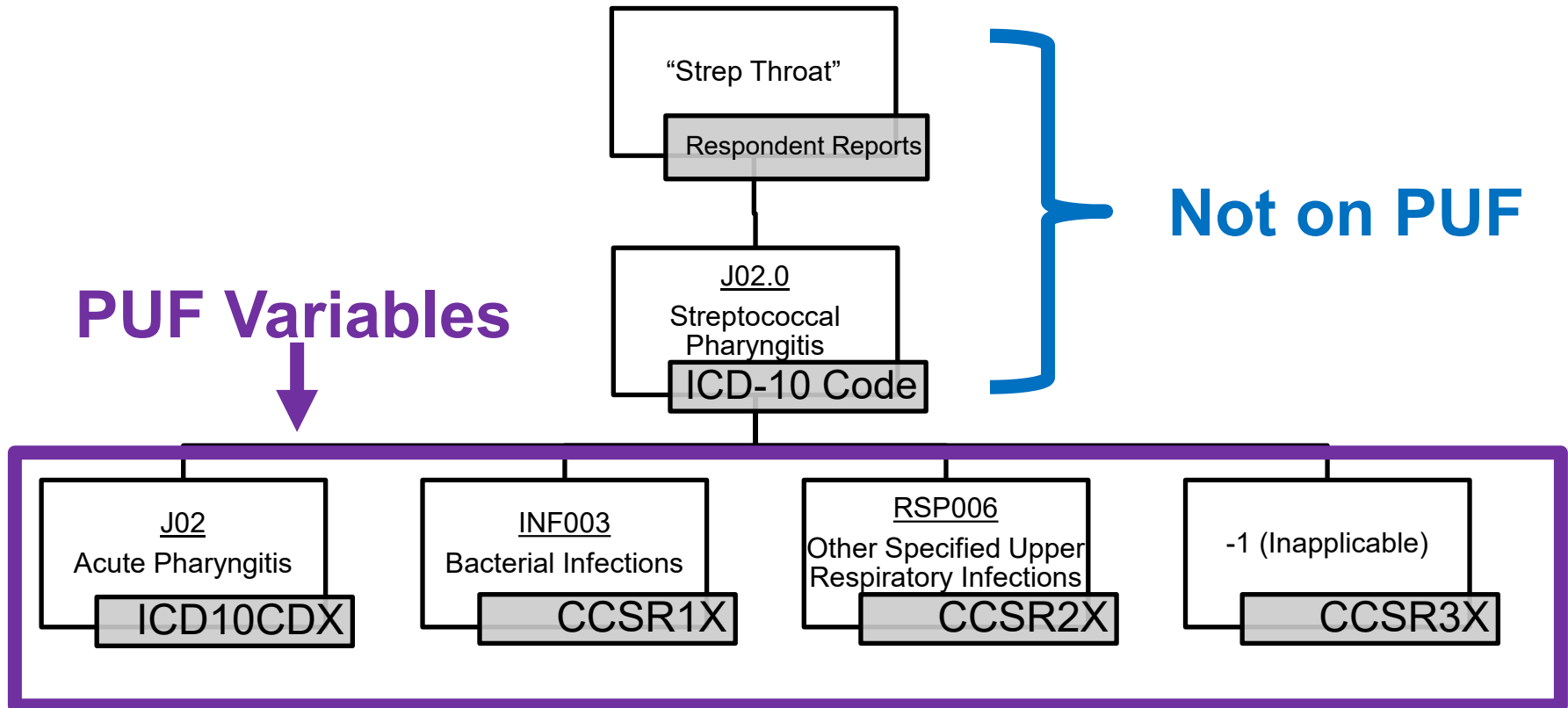
Medical Conditions PUF

- Each record is a unique combination of person and condition
 - ▶ Not everyone on the FYC will have condition records
 - ▶ MEPS sample members with multiple conditions will have multiple 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)
 - ▶ **COND variables: whether the condition links to any of that event type (e.g., ERCOND for ER visits)
 - ▶ 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

| | |
|---|---|
| <ul style="list-style-type: none">What's NewMailing ListDiscussion ForumParticipants' Corner | <ul style="list-style-type: none"><input type="checkbox"/> Household Component Full-Year files ⓘ Expenditure and utilization data for the calendar year from several rounds of data collection.<ul style="list-style-type: none"><input type="checkbox"/> Full-Year Consolidated Data files FYC PUF (Person-level)<input type="checkbox"/> Full-Year Population Characteristics files<input type="checkbox"/> Medical Conditions files Medical Conditions PUF<input type="checkbox"/> Risk Adjustment Scores files<input type="checkbox"/> Employment Variables file<input type="checkbox"/> Jobs files<input type="checkbox"/> Person Round Plan files<input type="checkbox"/> Longitudinal Data files<input type="checkbox"/> Supplemental Variables files (1996-2000)<input type="checkbox"/> Health Insurance Plan Abstraction file (1996)<input type="checkbox"/> Long Term Care file (1998)<input type="checkbox"/> Household Component Event files ⓘ Data for the calendar year on unique household-reported medical events.<ul style="list-style-type: none"><input type="checkbox"/> Prescribed Medicines files<input type="checkbox"/> Dental Visits files<input type="checkbox"/> Other Medical Expenses files<input type="checkbox"/> Hospital Inpatient Stays files<input type="checkbox"/> Emergency Room Visits files<input type="checkbox"/> Outpatient Visits files<input type="checkbox"/> Office-Based Medical Provider Visits files<input type="checkbox"/> Home Health files<input type="checkbox"/> Appendix to MEPS Event files CLNK PUF |
|---|---|

Example: Linking Conditions to Events

Conditions File

| DUPERSID | CONDIDX | ICD10CDX | HHCOND | IPCOND | OPCOND | OBCOND | ERCOND | RXCOND |
|------------|---------------|----------|--------|--------|--------|--------|--------|--------|
| 2510001101 | 2510001101001 | J00 | 2 | 2 | 2 | 2 | 2 | 1 |
| 2510001101 | 2510001101002 | M76 | 2 | 2 | 2 | 1 | 2 | 2 |
| 2510001101 | 2510001101003 | H52 | 2 | 2 | 2 | 1 | 2 | 2 |

CLNK File

| DUPERSID | CONDIDX | EVNTIDX | EVENTTYPE |
|------------|---------------|------------------|-----------|
| 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 | HHCOND | IPCOND | OPCOND | OBCOND | ERCOND | RXCOND |
|------------|---------------|----------|--------|--------|--------|--------|--------|--------|
| 2510001101 | 2510001101001 | J00 | 2 | 2 | 2 | 2 | 2 | 1 |
| 2510001101 | 2510001101002 | M76 | 2 | 2 | 2 | 1 | 2 | 2 |
| 2510001101 | 2510001101003 | H52 | 2 | 2 | 2 | 1 | 2 | 2 |

CLNK File



OB File

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

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

Caveats and Limitations

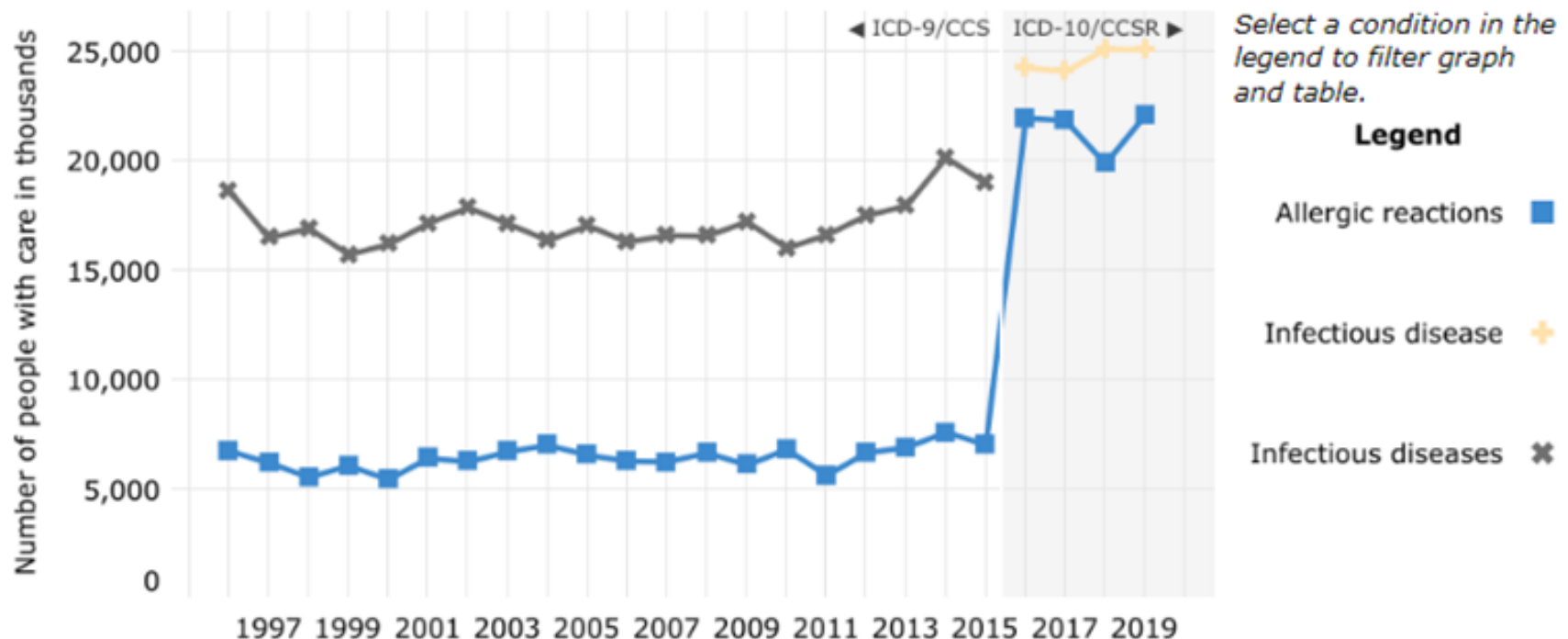
- MEPS can be used to produce “treated prevalence” estimates for conditions but not overall disease prevalence estimates
- Potential underreporting of conditions
 - ▶ Open-ended reporting lacks prompting of conditions
 - ▶ Recall error, especially if condition not salient
 - ▶ One respondent per household
 - ▶ 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

Number of people with care in thousands by condition, United States, 1996 to 2019



Starting in 2016, coding of household-reported medical conditions transitioned from ICD-9/CCS to ICD-10/CCSR codes. Take caution when comparing data before and after this transition. Refer to the Notes section for details.

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 | 2510001101004 |
| “High triglycerides” | E78.1 | E78 | END010 | -1 | -1 | 2510001101005 |

Practical Tips

- **COND variables (e.g., ERCOND) on conditions files are new for 2021
 - ▶ **NUM variables through 2020, but do NOT use these variables to estimate utilization for a condition
- 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

- Medical Conditions PUFs:
 - ▶ 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
 - ▶ In 2021, the condition lookup tool included entries for:
 - Covid-19/coronavirus (positive)
 - Covid-19 test neg / DK – exposure to coronavirus
 - Covid-19 test neg / DK - no known exposure to coronavirus

COVID-19 ICD-10 Coding for 2021 Medical Conditions Data

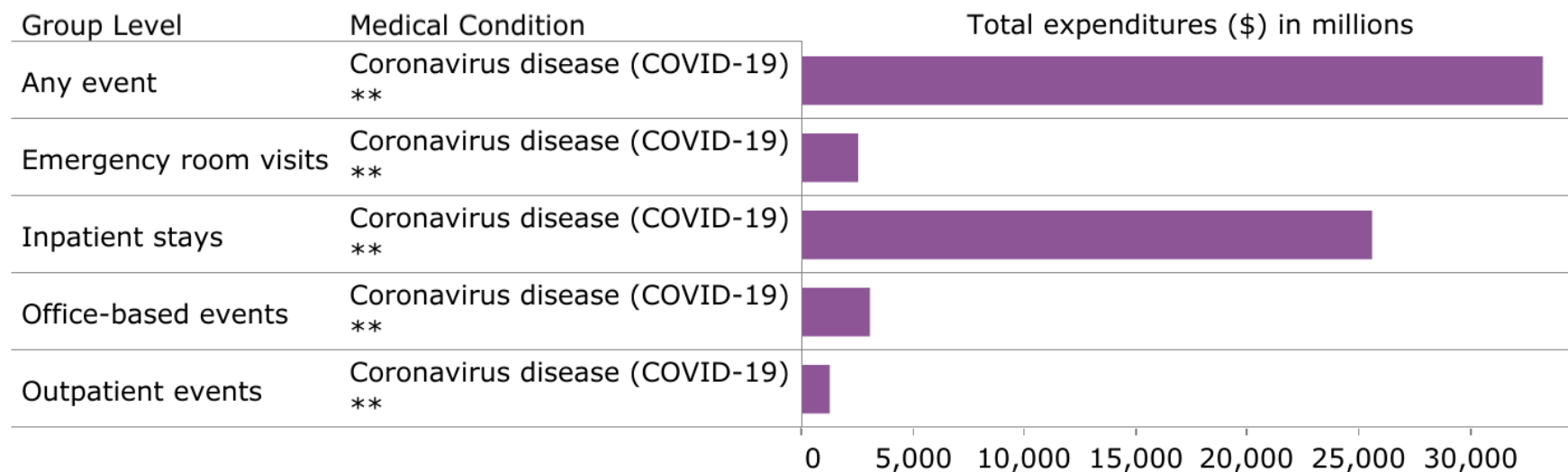
| Respondent Reports | MEPS ICD-10 Code |
|---|--|
| COVID-19 confirmed or positive test | U07.1 |
| COVID-19 presumed or suspected | Reason for encounter (e.g., fever, cough, exposure to covid) |
| COVID-19 testing (result unknown or negative) | Z20.822 |
| COVID-19 exposure | Z20.822 |
| Multisystem inflammatory syndrome with COVID-19 present | U07.1 |
| Multisystem inflammatory syndrome following history of COVID-19 | M35.81 |
| Respiratory manifestation of COVID-19 (e.g., covid pneumonia) | U07.1 |
| Pregnancy/childbirth with COVID-19 | O98.5 |
| COVID-19 vaccination | Z23 |
| Long COVID | U09.9 |

COVID-19

- Person-level measures on the FYC:
 - ▶ Questions on COVID-19 vaccination added in fall 2021 (and continued through present)
 - ▶ Questions on COVID-19 booster shots asked in 2022
 - ▶ Questions on delays in medical care due to COVID asked spring 2021 – spring 2022
 - ▶ COVID-19 and long COVID added as priority conditions in spring 2023

Example

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



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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