MEPS – Provider Look-up Enhancement

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Introduction

The purpose of this talk is to showcase a new technological enhancement, a look-up feature for reporting medical care providers, added to the Medical Expenditure Panel Survey (MEPS).
Background: MEPS Survey Components

- **MEPS-HC**: Household Component
  - Annual survey of 15,000 households
  - Provides national estimates of health care use, expenditures, insurance coverage, sources of payment, access to care and health care quality

- **MEPS-MPC**: Medical Provider Component
  - Follow-back survey of medical providers linked to respondents of the HC
Background: Medical Provider Component

• Survey of approximately 5,000 hospitals, 12,000 office based providers (OBDs), 7,500 pharmacies, 500 home health care agencies, and 12,000 separately billing doctors linked to respondents of the HC

• The MPC collects data that household respondents cannot accurately provide, such as dates of visit, charges and payments, diagnosis and procedure codes
  ▶ Essential for accuracy of MEPS expenditure estimates
Goals of MEPS-HC enhancements

• Reduce cognitive burden of responding

• Reduce response errors that impede MPC data collection

• Simplify interview administration / reduce survey costs
Provider Look-up Enhancement has...

- Reduce cognitive burden of responding
  - Google style look-up less burdensome than previous CAPI provider enumeration
  - One step entry
  - No required parameters for search - allows respondent to report what they can, in order they prefer

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  ► Google style look-up less burdensome than current CAPI provider enumeration
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  ► Fewer opportunities for entry errors

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  - Google style look-up less burdensome than current CAPI provider enumeration.
  - One step entry; no required parameters for search - allows respondent to report what they can, in order they prefer

- **Reduce response errors that impede MPC data collection**
  - Fewer opportunities for entry errors

- **Simplify interview administration / reduce survey costs**
  - Interviewer has short list of high likelihood matches to use in interview
  - Less time required to abstract hand entered providers
  - Fewer Authorization Forms (AFs), consolidation of MPC requests reduce provider duplication and improve MPC fielding
Provider Look-up Enhancement

• Provider Directory
  ► Free registry of providers with active National Provider Identifier (NPI) maintained by CMS National Plan and Provider Enumeration System (NPPES)

• Provider Look-up
  ► The Blaise system supports a smart search engine called *trigram* search
  ► Google style look-up that matches search string to records in NPI directory in real time
Blaise Trigram Search

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Blaise Trigram Search

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- All relevant fields (name, address, phone) for each record in NPI directory concatenated into a single text string \((index)\)
Blaise Trigram Search

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- Search string and indices are cut into three-character strings called *trigrams* (leading and following spaces added)
Blaise Trigram Search

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• All relevant fields (name, address, phone) for each record in NPI directory concatenated into a single text string (index)
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• *Match score* calculated based on how many trigrams from search string are present in the directory indices
Blaise Trigram Search

• Interviewer types in search string
• All relevant fields (name, address, phone) for each record in NPI directory concatenated into a single text string (index)
• Search string and indices are cut into three-character strings called trigrams (leading and following spaces added)
• Match score calculated based on how many trigrams from search string are present in the directory indices
• Records with highest match scores above a threshold are displayed
MEPS Specific Enhancements

• Provider Directory
  ► Directory for each interview tailored for respondent
  ► Restricted to providers within a 100-mile radius of respondents’ zip code
  ► Will add national centers for excellence in the near future

• Provider Look-up
  ► Optimal search heuristics developed by AHRQ and WESTAT and tested by Field Interviewers
    ◦ Start with phone number and/or unique text in provider name; more likely to whittle down to exact match than generic provider name, which may have many erroneous matches
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• Interface between Blaise CAPI interview and search tool

• Different approaches for search strings, focusing on “unique” information

• Variations in search results
Preliminary results with Look-Up Enhancement

• In prior version of look-up, the “match” rate had dropped to below 60%

• Using the enhanced look-up, we observe a little over an 76% match rate

• Using same approach for looking up Pharmacy providers, we observe a 87% match rate
Applications of Look-up Enhancements

• Could be used for quick search of other large databases, such as ICD10, etc.
  ► Like MEPS, prior information on survey population can help to do further enhancements and refine search/selection process to further reduce burden and time of interview

• Simplifies interviewer training – familiarity with typical search engines (Bing, Google)
  ► Less “new learning”
Conclusion

New provider look-up tool can improve HC and MPC collection:

• Reduce interview burden – Improve interviewers ability to work with respondent to select providers
• NPI directory can result in more accurate provider data
• Better data can streamline MPC data collection
  ▶ Fewer contact groups, fewer AFs due to less duplication
  ▶ More accurate/complete/consistent provider address/phone number information reduce amount of contacts to locate a provider
  ▶ Fewer contacts lower survey costs

• Technology can be generalized to other computer-assisted interviews when a large database is available
Thank you!