The Medicare Current Beneficiary Survey COVID-19 Data Tool

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Nola du Toit
Jennifer Titus
Michael Latterner

NORC at the University of Chicago

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Today's Talk

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Medicare Current Beneficiary Survey (MCBS)

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Medicare Current Beneficiary Survey (MCBS)

- Serves as the **leading source of information** on the Medicare program and its impact on beneficiaries
- Conducted by the Centers for Medicare & Medicaid Services (CMS) through a contract with NORC at the University of Chicago
- **Nationally representative** sample of the Medicare population
- Continuous, multipurpose survey

COVID-19 Supplements

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MCBS COVID-19 Supplements

- **Rapid response surveys** to quickly collect information on the pandemic's impacts on the Medicare population
- Cover preventive behaviors, forgone health care, access to telemedicine, attitudes around vaccines, vaccine uptake, and other **topics related to COVID-19**
- Nationally representative, cross-sectional telephone surveys as a supplement to the main MCBS
- CMS released Public Use Files (MCBS COVID-19 Summer and Fall 2020 PUFs) to make these data publically available to data users

Objectives of Data Tool

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Objectives of MCBS COVID-19 Data Tool

https://mcbs-interactives.norc.org/

- **Present findings** from the MCBS COVID-19 Summer 2020 and Fall 2020 Supplement PUFs through an evolving, interactive series of dashboards
- **Disseminate** statistically accurate estimates for benchmarking
- Make the data as **accessible** as possible to beneficiaries, providers, and health care researchers
- Allows users to **visualize** the data according to a variety of demographic and health status filters
- Make it **easy to explore** how different subgroups of Medicare beneficiaries have experienced the pandemic

Demonstration

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Process of Creating the Tool

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Process of Creating the Tool

- The data application was built as an R Shiny app + r2d3 (D3 in R environment)
- HTML + CSS was used for the main webpages
- Designed for accessibility across devices (i-frame)
- Collaboration across project teams + data visualization teams + statistics + information technology + communications
- Tied into other MCBS products (PUF and infographics)

Challenges and Insights

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Challenges	**Pressure of Rapid Release** One of our challenges was to develop and release the COVID-19 Tool as **quickly as possible**	**Load Performance** The other was the **sheer volume of data** we hoped to make accessible and usable.
Insights	When striving for speed, **quality can diminish** without proper precautions/checks	Dashboards that compute estimates from microdata can result in **long load times**
Guidance	When you need to get data out to your users quickly, focus your **initial release** on features most essential to understanding your data and work with stakeholders to prioritize other features for **subsequent releases**	Underlying the COVID-19 Tool are **aggregate estimates** (with survey weights) and this reduces computation load. The added benefit of pre-generating all estimates is that you can confine quality control to this set of estimates.

Thank you.

Nola du Toit
Senior Research Methodologist
and Data Visualization Lead
dutoit-nola@norc.org

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APPENDIX

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The Process of Development and Building

ANALYTICAL DESIGN
Data story
Audience; user experience
Platform

TOOL DESIGN
Wire framing
User experience
App + html

TOOL BUILD 1
Prototype
Data processing
App + html

TOOL BUILD 2
Updates
Copy + images
App + html

TOOL REDESIGN
Wire framing
Graphical design
App + html

DEMO
Revise analytical design
Revise user experience

TESTING
Data + Functionality
App + html

TOOL BUILD 3
Updates
App + html

LAUNCH
App + html
Testing live
Social Media

Technical Parts

R + D3

- Built in R Shiny app + r2d3 (D3 in R environment)
  - RShiny server is used to host the application
  - R was used for data wrangling + analysis + weighting + output tables
  - D3 added interactive functionality

HTML for the site pages

- The application is hosted inside a webpage built with html + css
- The application is placed inside an I-frame to allow for scalability across devices
- The webpage was built for 508 compliance and contrast

Collaboration

Project team + app team + IT development team

- Technical
  - Content was developed through collaboration and brainstorming of subject matter experts + data visualization experts + coding experts
  - We had to consider the platform development + use of servers

Add graphic design + communications

- Copy + images
  - All elements include copy in terms of headers and descriptions
  - Images had to be selected for the home page
- Social media sharing
  - The tool is shareable through social media
  - The Communications team helped with dissemination

Audience

Language

- Considerations had to be made in terms of common MCBS language, as well as the use of annotated text
- These all affected the physical space available on the tool

Too much versus too little

- We had to strike a good balance between providing enough details but not overwhelming the tool
  - Methodology links
  - User instructions
  - Confidence Intervals explanations

Many moving parts

Testing + Versions

- We employed extensive testing at various levels
  - The data estimates created in R compared to those created in SAS
  - The importing of the estimates into the tool
  - Tool functionality and user experience
- Compared information across other MCBS products (e.g.. the infographic)