



The NCHS Data Query and Visualization System: Development and Next Steps

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BSC Meeting

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Zoom

Feedback and Questions

- What non-NCHS tabulated data sources would you recommend prioritizing for inclusion in the DQS?
- What query and visualization features would you recommend prioritizing for inclusion in the DQS?
- What user groups can we work with to promote use/feedback of early DQS products?

NCHS DMI Goals: Data Query System

Data users seamlessly connect to data assets with the least amount of required prior knowledge about individual data systems.

National Vital
Statistics
System



National
Survey of
Family
Growth

NSFG

National
Health
Interview
Survey



National
Health and
Nutrition
Examination
Survey



National
Health Care
Surveys



Data
Linkage



Non-NCHS
Data
Sources



Building the NCHS Data Query System

Multiple (NCHS, CDC)
data systems

Wide variety of health
topics

Harmonized approach
to indicators

Existing staff resources

Health, United States

- 2019 -



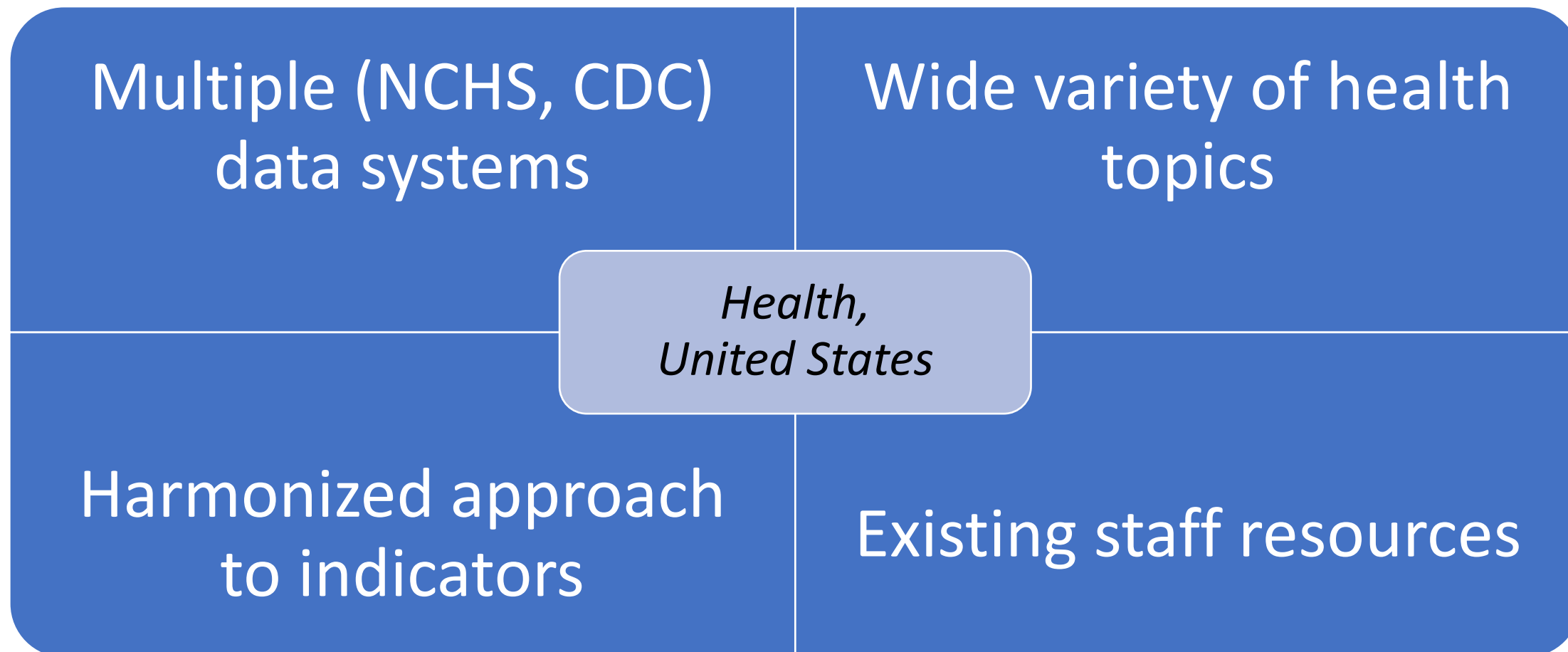
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Health Statistics



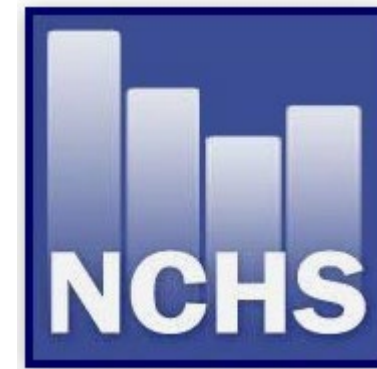
Health, United States: A Brief Detour

- A Congressionally mandated report from the Secretary of Health and Human Services to the President and Congress and flagship publication from the National Center for Health Statistics since 1974
- Uses NCHS and non-NCHS data sources to create national-level estimates for multiple population groups
- Digital first and interactive product redesign based on formative research with data users and other partners

Building the NCHS Data Query System



NCHS Partnerships: NCHS DQS Advisory Group



Goals and Activities:

1. Use the data query / data dashboard experiences from around NCHS to develop a set of critical features for inclusion in a single system.
2. Provide feedback on the pilot version of the DQS that uses *Health, United States* tables.
3. Develop a scope of work for the future NCHS DQS contract, including critical data needs and features.
4. Think ahead to further innovations that could be built with or on the NCHS DQS.

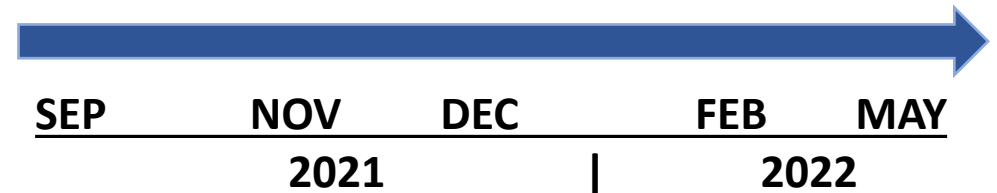
Enterprise Partnerships: GRASP and Socrata

- Worked with CDC/ATSDR/GRASP to award a contract for system development
 - Geospatial Research, Analysis, and Services Program team with expertise in public health and geospatial science, technology, visualization, and analysis
- Worked with existing agency license for Socrata (data.cdc.gov)
 - Manage and store machine readable files
 - Uses metadata to optimize search and organization
 - Provides multiple download formats and API endpoints



External Partnerships: AcademyHealth

- Expand NCHS' relevance and external engagement through a data challenge
- Test usability of new Data Query System data files for visualization



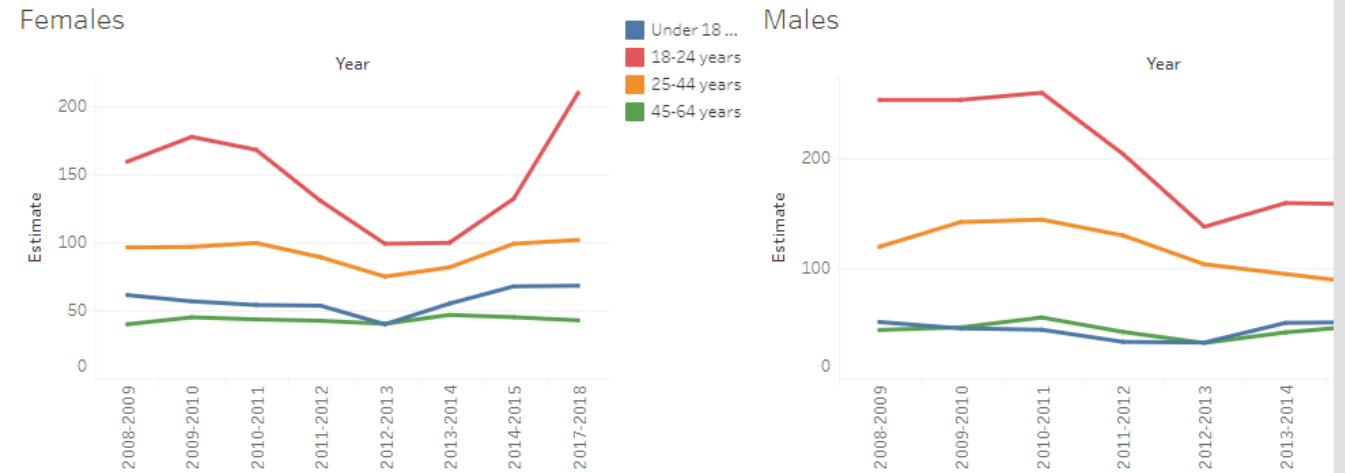
<https://academyhealth.org/NCHSData>

1st Place Winner

Sound the Alarm: Large Inequities in Rates of Gun Deaths Among Young People

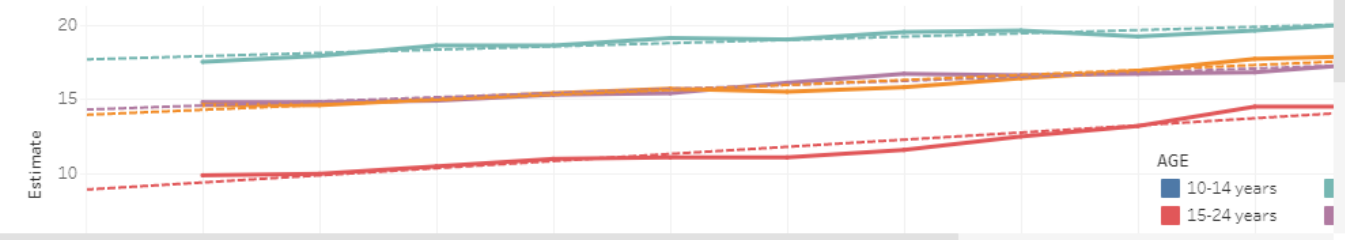
Initial Intentional Injury-related Visits to Hospital Emergency Departments per 10,000 persons, 2008-2018

Source: Health, United States, Table 75: <https://data.cdc.gov/NCHS/initial-injury-related-visits-to-hospital-emergenc/v4cs-jspc>



Death Rates for Suicide per 100,000 population, 2008-2018

Source: Health, United States, Table 9: <https://data.cdc.gov/NCHS/Death-rates-for-suicide-by-sex-race-Hispanic-origi/9j2v-jamp>



- Used DQS files for overarching trends
- Drilled down using WONDER queries
- Constructed a narrative using multiple visualizations
- Made methods information easy to find

tableau

Navigation icons: back, forward, search, refresh, zoom in, zoom out, print, full screen.

What We Learned

- Refined processes to transform legacy print-friendly tables into machine-readable data files
 - Developed distinct steps in processing and quality control
- Learning from users about file strengths and weaknesses
 - More “cohesion” between data files
 - More accessible methodological information

DQS Key Requirements

Timely

- Roll out new tabulations through existing channels
- Provide tabulations in machine-readable formats to support modeling and forecasting

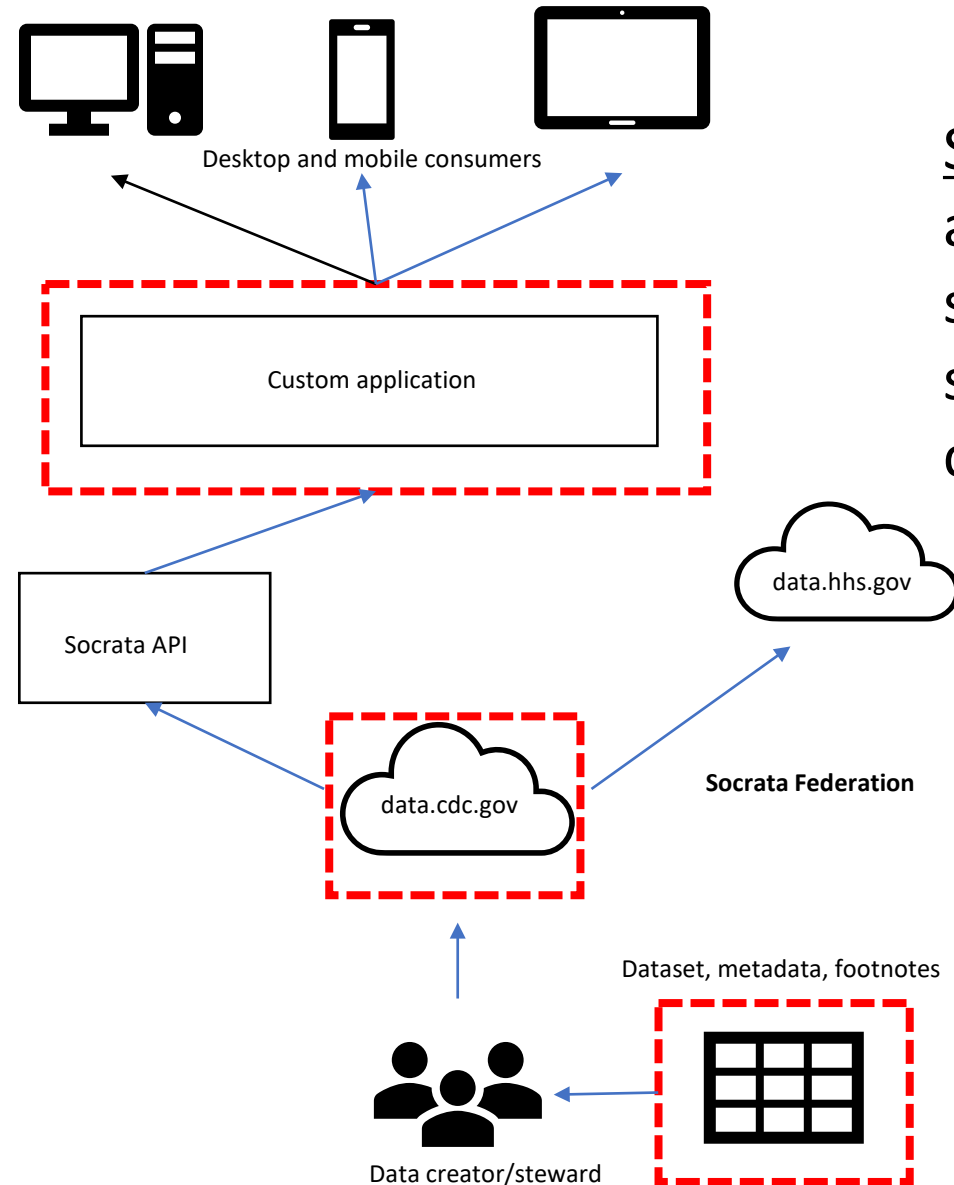
Leverages Enterprise Resources

- Providing users with a consistent experience across CDC and NCHS
- Encourage interoperability across NCHS (and non-NCHS) data sources

Customizable

- Customized and interactive data visualization tools (tables, charts, maps)
- Visualizing reliability of estimates; rotating content; redesign and standards changes; bringing together experimental, preliminary, and final data

DQS Key Data Decisions



Software platform – custom application approach to solving existing NCHS statistical / display challenges

Data file location – Socrata (data.cdc.gov) to use enterprise services for federated data

Data file types – aggregated, pre-tabulated estimates

1 Select a topic
Topic
All drug overdose deaths

2 Refine to a Subtopic
Default

3 View Data by Characteristic
Default

4 Choose from available Years
View single year
Start Year: Year End Year: Year

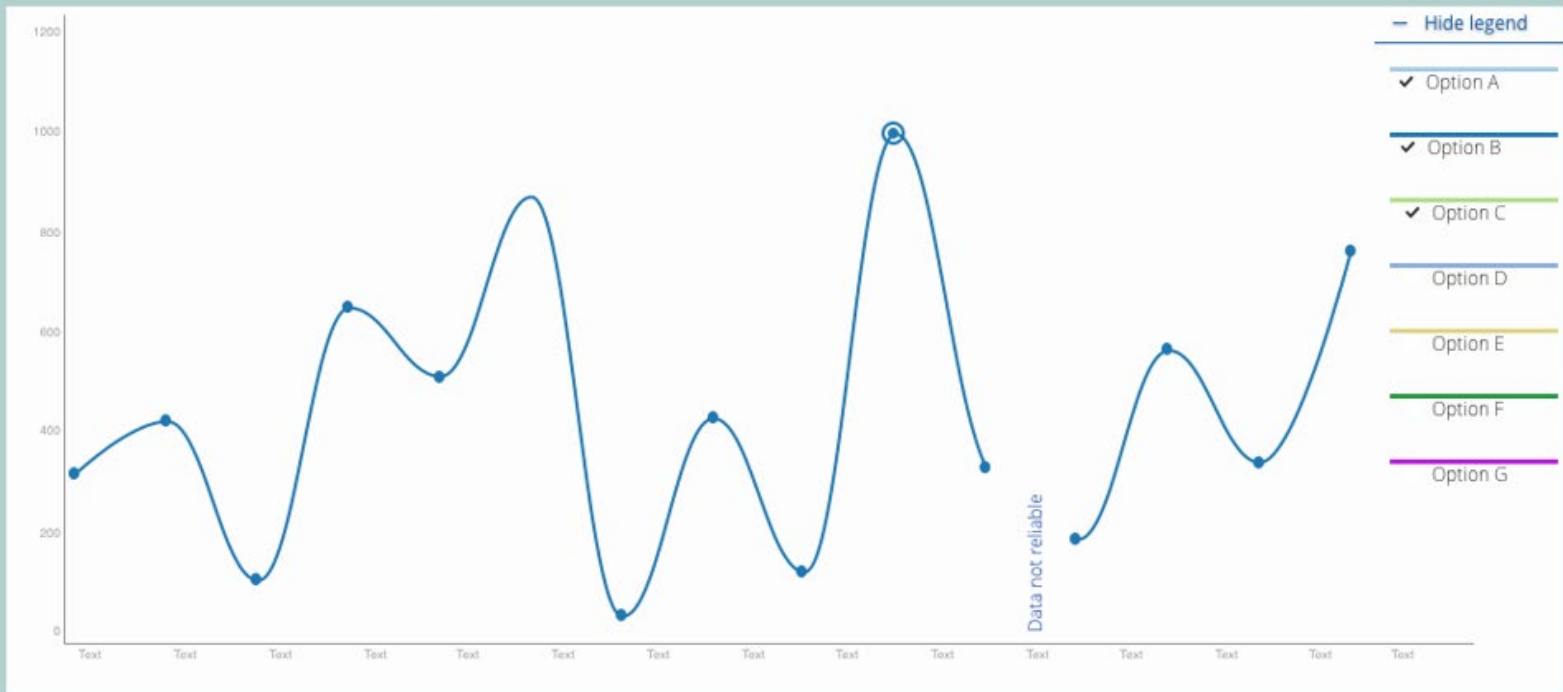
View Additional Filters Edit active filters

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Chart Table

Adjust vertical axis Number of Deaths



Source: Lorem ipsum dolor sit amet, consectetur adipiscing elit

+ Footnotes

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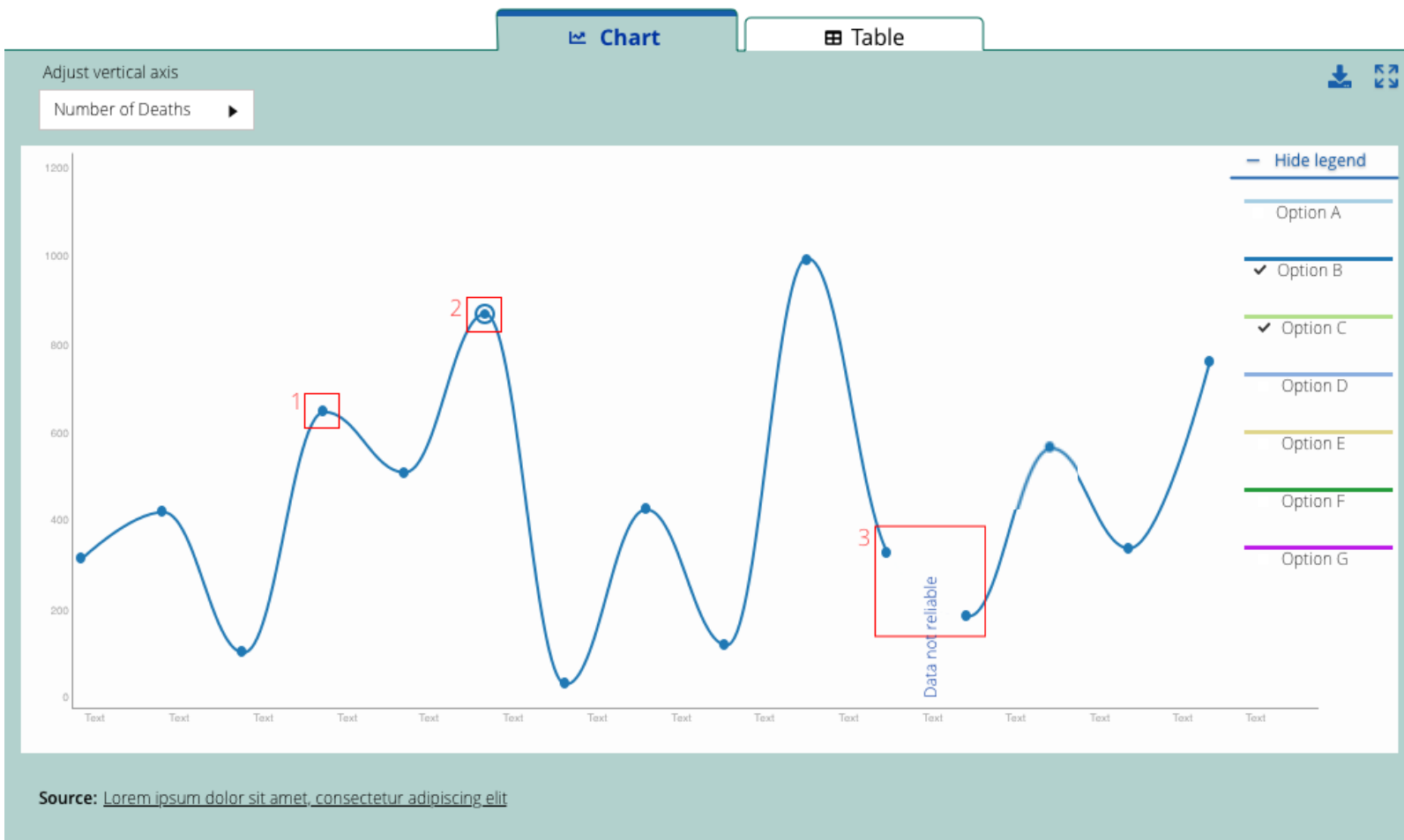
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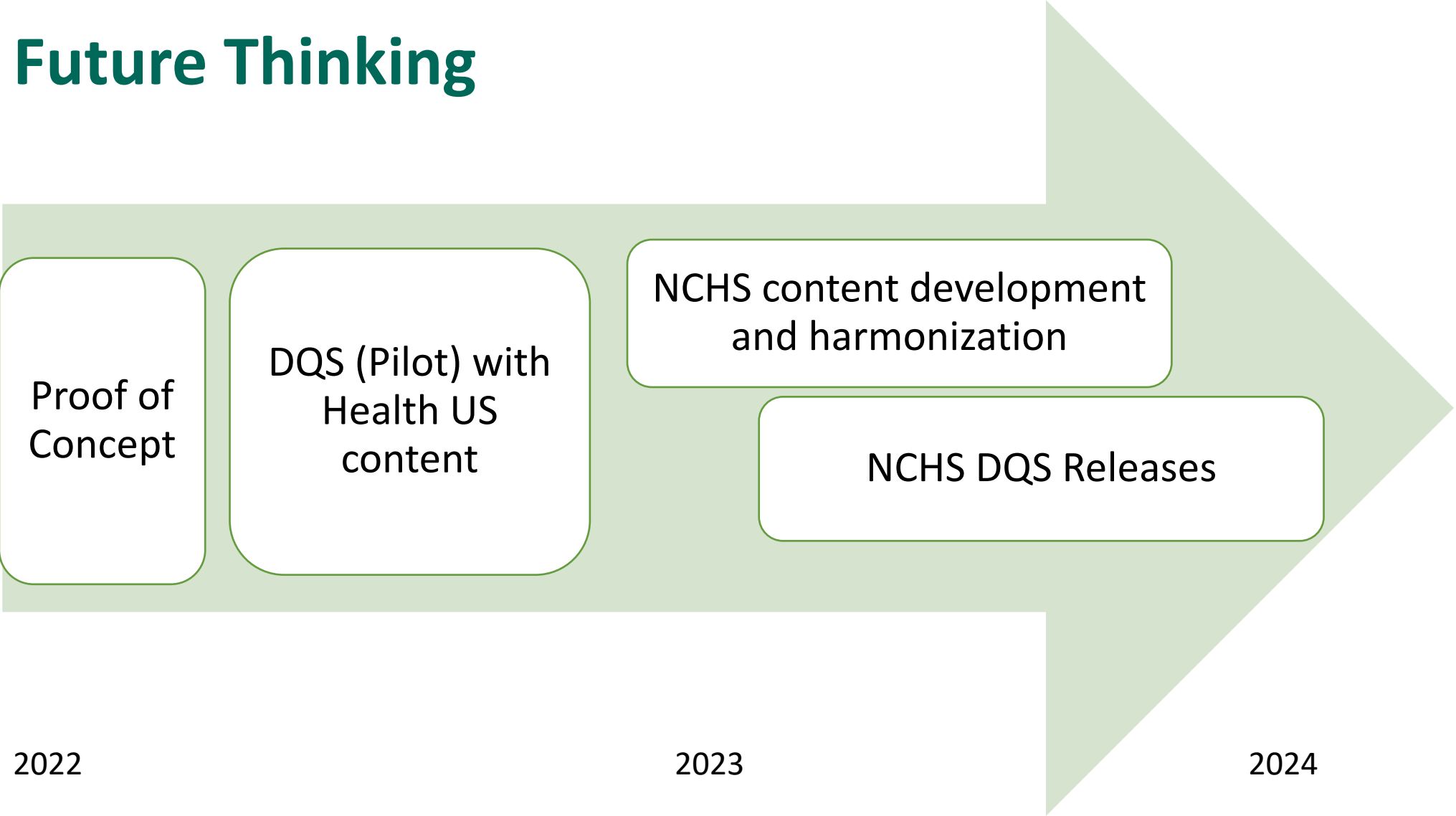
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Future Thinking



Acknowledgments

Project Team	NCHS	Partners
<p>DAE Irma Arispe* Shilpa Bengeri Matt Branner (CTR) Jim Brittain* La-Tonya Curl Barnali Das* Sheila Franco Renee Gindi* Nancy Han Liz Heitz Ji-Eun Kim Florence Lee* Fen Li Michelle Liu Jessica Morgan (CTR) Zakia Nelson (CTR) Keith Toussant (CTR) Ashley Woodall</p>	<p>NCHS OD Jim Craver</p> <p>OIS/OIT Latria Dolberry John Dolinka William Johnson* Anthony Lipphardt Dorothy Roper Sherry Brown-Scoggins</p> <p>DHCS Kathy O'Connor Carol DeFrances</p> <p>NCHS DQS Advisory Group NCHS DataViz Group</p>	<p>AcademyHealth</p> <p>CDC/ATSDR/GRASP</p> <p>TylerTechnologies (Socrata)</p> <p>* Project owners/stewards and core support</p>

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