

Resources for Continued Learning

Table of Contents

- [Health Department-created Resources](#)
- [Recommendations & Templates](#)
- [Incorporating Health Equity & Accessibility](#)
- [Workforce Strategies & Trainings](#)
- [Establishing a Data Sharing Culture within your Agency and with Partners](#)

Health Department-created Resources

Resource	Details
Considerations when Defining Data Dashboard Requirements	A document from the Arizona Department of Health Services outlining the agency's strategy and guidelines for developing data dashboards. The document outlines their program, staffing requirements, goals, data collection and analysis strategy, and data dashboard workflow, format, style, and monitoring protocols.
COVID-19 Vaccine Solutions Dashboard	A document that describes how Pima County, Arizona, could use its COVID-19 data dashboard to help identify and intervene in areas with low vaccination uptake.
Maricopa County Public Health COVID-19 Stories: Voices of Maricopa County	A website that demonstrates an example of sharing community members' stories.
Massachusetts Department of Public Health Racial Equity Data Road Map: Data as a Tool Towards Ending Structural Racism	This Racial Equity Data Road Map is a tool by the Massachusetts Office of Health Equity used to eliminate structural racism. The guide provides guiding questions, tools, and resources to guide health agency programs to better identify, understand, and act to address racial inequities. It includes step-by-step guidance on collecting and analyzing racial and health equity data and strategically moving data to action.
Pros and Cons of Tableau, PowerBI, and R Shiny	A document from the Washington State Department of Health that compares the pros and cons of Tableau, Power BI, and R Shiny.
WA DOH COVID Dashboard Style Guide	A document from the Washington State Department of Health that outlines the agency's protocols for displaying data on data dashboards. The documents details protocols around data standards, data quality, data validation, dashboard verbiage, dashboard page layout, design, visualization colors, agency-wide visualization standards (maps, decimal places, titles, and more), data suppression, data annotations, and statistic reporting and standards.
WA DOH Expanded Agency Data Visualization Color Palette	A document outlining the set of colors that the Washington Department of Health have identified and recommend their staff to use in their data dashboards to align with their agency's branding.

Recommendations & Templates

- "Visual analysis best practices: A guidebook." Tableau Software from Salesforce. Accessed September 28, 2023. <https://www.tableau.com/learn/whitepapers/tableau-visual-guidebook>.
 - » A White Paper by Tableau detailing data visualization best practices and guidance.
- Perez S. 8 Dashboard Report Best Practices to Successfully Leverage Data. Published July 21, 2021. Accessed September 28, 2023. <https://www.brightgauge.com/blog/8-tips-for-effective-dashboard-reporting>.
- Rodriguez J. Guidelines for successful dashboard design. Fresh Consulting. September 20, 2021. Accessed September 28, 2023. <https://www.freshconsulting.com/insights/blog/successful-dashboard-design/>.
- Effective dashboard design: A step-by-step guide. Geckoboard. Accessed September 28, 2023. <https://www.geckoboard.com/best-practice/dashboard-design/>.
- Doyle C. Using a grid to improve information dashboards. Medium. February 18, 2020. Accessed September 28, 2023. <https://medium.com/data-science-at-microsoft/using-a-grid-to-improve-information-dashboards-731580d629f2>.

- Sigdel R. Comparison between Arcgis Dashboard, Tableau Dashboard, and R flexdashboard. Medium. January 12, 2022. Accessed September 28, 2023. <https://towardsdatascience.com/comparison-between-arcgis-dashboard-tableau-dashboard-and-r-flexdashboard-86604cd125d1>.
- 23 best data visualization tools for 2023. Simplilearn.com. July 23, 2023. Accessed September 28, 2023. <https://www.simplilearn.com/data-visualization-tools-article>.
- Data Viz Project. Accessed September 28, 2023. <https://datavizproject.com/>.
- The Data Visualization Catalogue. Accessed September 28, 2023. <https://datavizcatalogue.com/>.
- Wexler S, Shaffer J, Andy Cotgreave. Now available. Big Book of Dashboards. Accessed September 28, 2023. <https://www.bigbookofdashboards.com/>.

Incorporating Health Equity & Accessibility

- Islands Health Equity Framework. ASTHO. Accessed September 28, 2023. <https://www.astho.org/topic/territories-freely-associated-states/island-equity-framework/>.
- Health equity guiding principles for inclusive communication. Centers for Disease Control and Prevention. August 11, 2023. Accessed September 28, 2023. https://www.cdc.gov/healthcommunication/Health_Equity.html.
 - » This CDC resource emphasizes the importance of addressing all people inclusively and respectfully. These principles are intended to help public health professionals, particularly health communicators within and outside of CDC, ensure their communication products and strategies adapt to the specific cultural, linguistic, environmental, and historical situation of each population or audience of focus.
- Preferred terms for select population groups & communities. Centers for Disease Control and Prevention. November 3, 2022. Accessed September 28, 2023. https://www.cdc.gov/healthcommunication/Preferred_Terms.html.
- Checklist for plain language. Accessed September 28, 2023. <https://www.plainlanguage.gov/resources/checklists/checklist/>.
- WCAG 2 A and AA checklist. WCAG 2 A and AA Checklist | Usability & Web Accessibility. Accessed September 28, 2023. <https://usability.yale.edu/web-accessibility/articles/wcag2-checklist>.
- WebAIM's WCAG 2 checklist. WebAIM. February 26, 2023. Accessed September 28, 2023. <https://webaim.org/standards/wcag/checklist>.

Workforce Strategies & Trainings

- Data Visualization for Performance Improvement Learning Series. Accessed September 28, 2023. https://learn.astho.org/component/axis/?view=sso_config&id=3&forward=https%3A%2F%2Flearn.astho.org%2Fcourses%2Fgeneral-courses%2Fcourse%2Fdata-visualization-for-performance-improvement-learning-series.
 - » This ASTHO-developed data visualization for planning and performance improvement learning series, also available in Spanish, is designed to support public health agencies to increase knowledge of data visualization principles and techniques. Using specific examples of charts and graphs, these modules illustrate why it is essential to know your data, find the patterns, and tell the story to advance your agency's priority projects. The topic-specific modules include existing ASTHO resources and recommended partner resources. The full series promotes broad use of data visuals in public health and covers the following:
 - Data Visualization Matters
 - Data Visualization: Changes over Time
 - Data Visualization: Differences in Outcomes
 - Data Visualization: Complex Comparisons
- Christopher GC, Zimmerman EB, Chandra A, Martin LT, eds. Charting a course for an equity-centered data system. RWJF. October 2021. Accessed September 28, 2023. <https://www.rwjf.org/en/insights/our-research/2021/10/charting-a-course-for-an-equity-centered-data-system.html>.
 - » Recommendations from the National Commission to Transform Public Health Data Systems on which health equity efforts to prioritize. It outlines the roles and actions the federal government, state government, local government, public health, businesses, healthcare systems, non-profits, professional associations, schools, and philanthropy must take to achieve an equity-centered data system.

- Eun D. Essentials of data visualization for public health. Local Public Health Institute of Massachusetts Comments. Accessed September 28, 2023. <https://sites.bu.edu/masslocalinstitute/2023/05/02/essentials-of-data-visualization-for-public-health/>.
 - » This training by Boston University's School of Public Health will teach learners about common types of data projects, methods for starting and finishing data projects, and common errors when working with data.
- All In: Data for Community Health. April 23, 2019. Accessed September 28, 2023. <https://www.allindata.org/about-us/>
 - » A learning community that discusses and pilots innovative strategies on how multi-sector partners can work together to improve how they share data and work towards better community health outcomes.
- 5 data visualization jobs (+ ways to build your skills now). Coursera. September 6, 2023. Accessed September 28, 2023. <https://www.coursera.org/articles/data-visualization-jobs>.
- Chowdhury MR. 10 data visualization jobs with salaries and skills | indeed.com. July 13, 2023. Accessed September 28, 2023. <https://www.indeed.com/career-advice/finding-a-job/data-visualization-jobs-with-salary>.
- Lehman C. How to structure your data analytics team. Shipyard. July 8, 2022. Accessed September 28, 2023. <https://www.shipyardapp.com/blog/analytics-team-structure/>.
- Babitz K. How to Build a Winning Data Team. DataCamp. June 2021. Accessed September 28, 2023. <https://www.datacamp.com/blog/how-to-build-a-winning-data-team>.
- Hayes A. What is a Gap Analysis? Investopedia. July 24, 2023. Accessed September 28, 2023. <https://www.investopedia.com/terms/g/gap-analysis.asp>.

Establishing a Data Sharing Culture within your Agency and with Partners

- Health Information and Data Sharing. Network for Public Health Law. January 21, 2020. Accessed September 28, 2023. <https://www.networkforphl.org/resources/topics/health-information-and-data-sharing/#resources-63bc40bb39a2b>.
 - » NPHL provides resources and guidance in the form of documents, webinars, handbooks, and more that help agencies address legal barriers and facilitate data sharing within the legal requirements of HIPAA and other laws and regulations.
- Standards to facilitate data sharing and use of surveillance data for Public Health Action. Centers for Disease Control and Prevention. March 5, 2014. Accessed September 28, 2023. <https://www.cdc.gov/nchhstp/programintegration/sc-standards.htm>.
 - » CDC provides guidance and considerations for data sharing policies addressing the sharing and use of data by health agency programs, data collection and use, data sharing and release, document and system data security, and electronic data security/encryption.
- Connecting the dots: A data sharing framework for the local ... - NACCHO. May 2014. Accessed September 28, 2023. <https://www.naccho.org/uploads/downloadable-resources/Issue-Brief-Data-Sharing-Framework-NA592.pdf>.
 - » This NACCHO Issue Brief provides local health departments and their partners with guidance to develop strong partnerships and engage in successful data sharing. The brief provides information on 1) the data life cycle, 3) characteristics of strong partnerships, 3) elements of a data management plan, and 4) contents areas of data sharing agreements.
- Dash overview - DASH - data across sectors for Health. Data Across Sectors for Health. Accessed September 28, 2023. <https://www.dashconnect.org/dash-overview>.
 - » A national initiative program that provides funding, resources, tools, and strategies to help organizations in the public health, social services, and healthcare sector implement policies and processes to equitably share data with each other. DASH is co-led by the [Illinois Public Health Institute](#) and the [Michigan Public Health Institute](#). The two institutes make up the DASH Program Office, which the Robert Wood Johnson Foundation funds. For more information and training on data sharing policies and establishing data sharing relationships, refer to previous webinar [recordings](#) hosted by DASH.
- Health Information Exchange. HealthIT.gov. April 18, 2023. Accessed September 28, 2023. <https://www.healthit.gov/topic/health-it-and-health-information-exchange-basics/health-information-exchange>.
 - » Webpage from the Office of the National Coordinator for Health Information Technology that provides information, resources, and trainings on Health Information Exchanges.

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