

Preventive Health and Health Services Block Grant

SUCCESS STORY 2019

Public Health 2035

The Community Burden of Disease Engine Revs Up!

Public Health Issue: Providing data on patterns and trends in morbidity and mortality is a core public health function, and is essential for effective and efficient public health programs¹. Public health's increasing awareness that many determinants of health are place-based necessitates modification and enhancement of our data dissemination systems to provide more geographically granular data on disease burden and associated factors. In addition, given the rapid evolution of information delivery resources, and expectations of our stakeholders, we need to use modern, nimble, methods and tools to develop and provide up-to-date, high quality, interactive data visualizations and query systems for these purposes.

Intervention: To address these requirements, the CDPH Fusion Center for Strategic Engagement and External Relations initiated the “California Community Burden of Disease and Cost Engine (CCB)” project in 2016. The CCB provides systematic scientific data on burden of diseases in California, with multiple data sources, at multiple geographic levels, using multiple statistical measures, with a wide range of data visualizations and analyses. The CCB is a web application built using the free and open source R software², its “Shiny” package³, and a set of standards-based tables. Much more information about the tool can be found on the site itself at www.cdph.ca.gov/CommunityBurden.

During this project period, CCB data sources, visualizations, and analyses were all greatly expanded and the CCB user experience was greatly enhanced. For example: death data for 2017 and 2018 were added; data on hospitalizations, including monetary charges were added; trend charts were added including by age, race, sex, and educational attainment; a disparities “dashboard” page was added; and risk data from the Institute for Health Metrics and Evaluation⁴ were added. The user experience was enhanced with the addition of a robust “help” system, detailed technical documentation, and a number of navigational improvements.

Extensive outreach and publicity regarding the CCB were conducted including: presentations at annual meetings of the California Conference of Local Health Offices and of the California Conference of Local Health Data Managers and Epidemiologist; webinars to CDPH and other partners; and meetings and collaboration with individual county IT and Epidemiology teams

Impact: Improvements to and outreach regarding the CCB resulted in more partners using the tool, local health department using the tools for their County Health Improvement Plans, and deployment of local county versions of the tool. The data and architecture of the system was also used to provide a range of other data products, including stand-alone interactive documents for emerging and priority topics including but not limited to; measuring health status, gun violence, hospitalization among the homeless, hospitalizations for psychoses, and more. Overall, the CCB has made geographically granular health condition data available online to a wide range of internal and external stakeholders. Careful review of patterns and trends in these data can influence strategic public health decisions in California and ultimately impact the health of the population.

Footnotes:

1. Centers for Disease Control and Prevention. 10 Essential Environmental Public Health Services. URL <https://www.cdc.gov/nceh/ehs/10-essential-services/index.html>. Accessed 11/21/2019.
2. R Core Team (2016). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>. Accessed 11/21/2019.
3. Winston Chang, Joe Cheng, JJ Allaire, Yihui Xie and Jonathan McPherson (2017). shiny: Web Application Framework for R. R package version 1.0.0. <https://CRAN.R-project.org/package=shiny>. Accessed 12/12/2017.
4. Institute for Health Metrics and Evaluation. Global Burden of Disease (GBD), project description and resources: <http://www.healthdata.org/gbd>. Accessed 11/21/2019.