

## County of San Diego: 2021 CSAC Challenge Awards Executive Summary

**TITLE OF THIS ENTRY:** Using Non-traditional Data to Understand COVID-19 Locally

**OVERVIEW:** The behavioral, physical, and environmental determinants associated with COVID-19 were essential to understanding local impacts. Collaborating with researchers from varied fields provided invaluable information.

**CHALLENGE:** In April 2020, COVID-19 was a highly contagious novel virus associated with high morbidity and mortality. Available information was often conflicting, speculative, and politicized. As San Diego County went into lockdown, County of San Diego (County) officials needed locally specific information as quickly as possible. At the same time local university professors and researchers were suddenly idled and wanted to contribute but needed direction in how best to do that without overtaxing the County's public health staff.

**SOLUTION:** Early in the COVID-19 response, the Public Health Services (PHS) department, in the County of San Diego Health and Human Services Agency (HHSA), began providing COVID-19 data publicly through daily briefings and the website. The Community Health Statistics Unit of the PHS department began meeting virtually with researchers from several local universities in a collaborative weekly meeting to share the public COVID-19 information, relay questions from PHS, and align efforts toward understanding the pandemic as it was impacting San Diego County. Through this communication, PHS was able to get early and reliable answers to questions and researchers directed their efforts toward meaningful and impactful areas of research.

**INNOVATION:** The different research teams were able to talk to each other and augment their skills toward working on questions or problems that the county needed to be addressed. This focused collaboration between engineers, epidemiologists, modelers, computer scientists, communication specialists and health researchers led to some innovative solutions and local information.

**RESULTS:** The various researcher teams used:

1. mobility analyses to understand compliance with stay-at-home orders and the subsequent impact of tourist travel to San Diego on COVID-19 case rates;
2. social media analyses to identify community concerns, misinformation and confusion about COVID-19 that could then be addressed through County communications;

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3. spatial/temporal analytics and regression analysis to determine very early on that the Hispanic and Pacific Islander populations were particularly impacted, as well as those who experienced linguistic isolation, lower education and lower income;
4. scenario modeling to generate local forecasts of cases, hospitalizations, ICU and deaths;
5. local observational surveys to quantify mask adherence among young adults;
6. agent-based modeling to assess potential risk in classrooms, campuses and buses based on NPI, school and bus design which was developed into an online tool for use by school administrators to test their plans; and
7. wastewater analyses to identify early outbreaks in congregate settings.

These projects help the County identify areas to focus messaging, populations at risk, and provide invaluable information on mobility and compliance with non-pharmaceutical interventions.

**REPLICABILITY:** Utilizing the knowledge, analytical skills, and data from experts outside of public health to focus on the external factors driving a communicable disease event was extremely useful in understanding spread, risk factors and community sentiment. Many of these data and techniques such as travel patterns, social media monitoring, and engineering modeling will continue to be used locally through the relationships established. Other counties could replicate this success by establishing relationships with their local universities and research entities.

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**ADDITIONAL MATERIALS:** [www.coronavirus-SD.com](http://www.coronavirus-SD.com) [www.sdhealthstatistics.com](http://www.sdhealthstatistics.com)