



COVID-19 Area Vulnerability Index



Health crises, such as the current COVID-19 pandemic, can occur at any time or place.

Communities can face vulnerabilities when national and local systems, including health systems, cannot cope with the consequences of a crisis that causes a sudden increase in demand and overwhelms the institutions involved. Prior work on area vulnerability measurements focus on either social determinants of health (SDOH) only for general purposes or include a limited number of risk factors for COVID-19. OptumServe developed a U.S. county-level COVID-19 Area Vulnerability Index (AVI) taking into account the adequacy of local health care resources and COVID-19 specific risk factors to meet the needs of federal, state and local governments.

Objectives of OptumServe COVID-19 AVI

Federal and local government agencies and health care systems can use the AVI to prioritize resources and optimize the use of health care to fight COVID-19. The OptumServe COVID-19 AVI can:

- Identify geographic hot spots and assess their vulnerability
- Support health care resources planning
- Inform emergency preparedness
- Assess for health resources allocation and prioritization



About OptumServe

OptumServe is the federal health services business of Optum and UnitedHealth Group (NYSE: UNH). We are proud to partner with the Departments of Defense, Health and Human Services, Veterans Affairs and other organizations to help modernize the U.S. health system and improve the health and well-being of those we collectively serve.

Quintile

In statistics, a quintile is where the sample or population is divided into fifths.

Support COVID-19 initiatives utilizing AVI

The AVI can support various COVID-19 initiatives such as:

- Testing – offering infection testing to locations at particular risk for disproportionate impact of COVID-19
- Telehealth – identifying areas with the least health resource adequacy and most in need for telehealth
- Vaccine deployment – helping prioritize areas for routine vaccination and for deployment of a potential COVID-19 vaccine
- Disease management & care planning – help to strategize care planning for potential surge in COVID-19 related hospitalization and emergency room visits

The OptumServe COVID-19 AVI includes three risk scores:

- Mobility/density/SDOH
- Morbidity
- Health resources adequacy

The OptumServe COVID-19 Medical Intelligence Tracker presents the AVI risk score in a user-friendly interface to drill down to state and counties and cross-tabulate with confirmed COVID-19 cases. The AVI can be combined with other COVID-19 prediction, simulation, and forecasting tools or digital devices to help deepen knowledge about COVID-19 and mitigate its impact.

Exhibits 1 - 3 show the national distribution of the three risk scores in quintile by county, with the 1st quintile representing lowest risk (blue) and the 5th quintile representing the highest risk (orange). In general, the coastal areas show the highest risk in terms of population density, mobility, SDOH risk and chronic disease burden. The inner states, although less populated, mobile, and less affected by SDOH and chronic disease burden, tend to have less access to health resources, making them potentially more vulnerable to COVID-19, when it reaches these communities.

Mobility/density/SDOH risk score

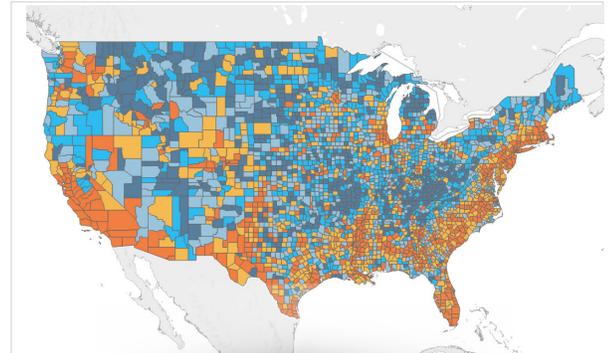


Exhibit 1

Morbidity risk score

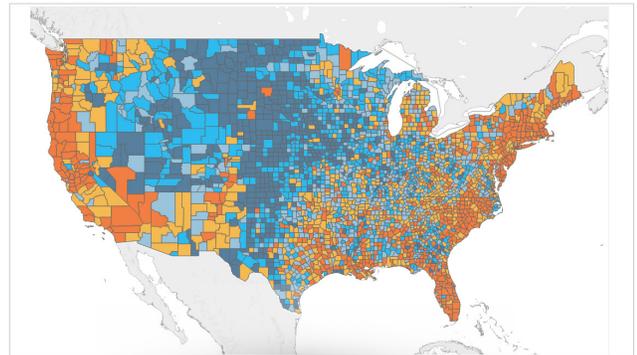


Exhibit 2

Health resources adequacy risk score

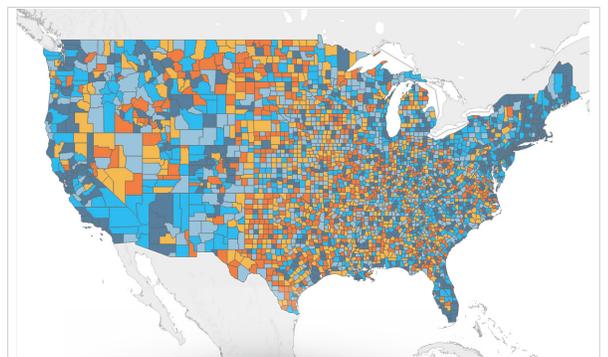


Exhibit 3

- Legend:**
- 1st Quintile (lowest risk)
 - 2nd Quintile
 - 3rd Quintile
 - 4th Quintile
 - 5th Quintile (highest risk)

Actionable data to manage health crises

The OptumServe Area Vulnerability Index helps public health officials at federal, state and local levels better prepare and manage health crises, including COVID-19, by providing comprehensive data to make fact-based decisions to protect the populations they serve. In a time of uncertainty and constant change, awareness of the most vulnerable populations and hot spots can help mitigate the spread of COVID-19. As a leader in data and analytics, OptumServe brings the expertise, experience and scalability to assist public health agencies in the battle against COVID-19.

Learn more about the OptumServe COVID-19 Area Vulnerability Index

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