



COVID-19 and Healthcare Planning

Data Resources for Surveillance, Prediction, and Policymaking

The COVID-19 pandemic presents an urgent need for data and tools that states, health care decision makers, and providers can use to predict need and direct resources. Data sources, analytic tools, policy options, and other resources are growing rapidly. Below is a preliminary [list of resources organized by Mathematica](#).*

Source name, data set/ dashboard name	Description of contents	Case surveillance	Population need	Testing/diagnosis	Treatment capacity	Guidance/ preparedness	State policies/ actions
Multi-Source Dashboards and Data for Tracking							
JHU/ESRI Coronavirus COVID-19 Global Cases by the Center for Systems Science and Engineering	This dashboard pulls together multiple data sources to display confirmed cases, deaths, and recoveries from COVID-19 globally. In the U.S., cases are documented at the county level. In China, data are at the province level. In Canada and Australia, data are at the city level. The remaining data are at the country level. Related links include a GitHub repository with all of the data sources used, a GIS feature layer with up-to-date information on COVID-19 cases, and other resources (such as an interactive case map visualization and guidelines on hygiene meant to help the public and policy-makers on how to respond to the virus).	✓				✓	✓
ESRI Coronavirus Response Solution	This ArcGIS solution includes a collection of maps and apps intended for use by public health agencies to understand the impact of COVID-19. The solution includes applications to track cases, policy changes, and testing sites.	✓		✓	✓	✓	✓
Kaiser Family Foundation State Data & Policy Actions to Address Coronavirus	This web page summarizes various state-level information related to COVID-19 including the number of cases , policy responses , at-risk populations based on health status , health insurance coverage, treatment capacity , and test positivity rates . Data sets on the web page are downloadable as .csv files.	✓	✓	✓	✓		✓
1Point3Acres COVID-19 in US and Canada	This dashboard includes information on COVID-19 cases and testing at the county level in the U.S. and province level in Canada. It also includes information on school closures and other impacts COVID-19 has had on events around the world.	✓		✓			✓

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covidtracking COVID Tracking Project	The COVID Tracking Project has state-level case information for states across the U.S. It includes links to data sources for each state as well as historical trends. It aims to provide the most comprehensive data on state-level testing for the novel coronavirus, filling gaps in CDC-reported testing data. It explains that testing is a crucial part of any public health response and sharing testing data is a necessary part of understanding this outbreak. This Google Document contains recommendations on what type of data states should report for maximum civic understanding. This link contains case numbers from the COVID Tracking Project by state in Excel spreadsheet form. This webpage has national case numbers from the COVID Tracking Project in the U.S. by date.	✓					✓
State of Massachusetts COVID-19 Cases, Quarantine, and Monitoring	This website contains information on coronavirus case counts (example as of 3/26) in Massachusetts by county, the number of residents under quarantine , and guidelines for lab testing of patients with suspected COVID-19 (with FAQs).	✓		✓		✓	
Washington State Rapid Health Information Network (RHINO)	This page contains information about Washington's syndromic surveillance system, which is a real-time, population-based monitoring system. It is used to identify, investigate, and design data-driven, rapid responses to emerging public health threats. These data can provide insights into chronic disease burden, environmental threats, and injury trends. Because the data are so versatile, syndromic surveillance is rapidly growing into a basic tool for public health practitioners and their partners. This link directs to the RHINO data set.			✓		✓	
COVID-19 Case Counts/Epidemiologic Surveillance							
News Break Coronavirus Realtime Updates	This dashboard summarizes the number of cases and deaths from COVID-19 in the U.S. and globally. U.S. data are disaggregated to the county and state level, and data for the rest of the world are presented at the country level. The dashboard also provides links to COVID-19-related news, which can be filtered based on geographic region.	✓					
CDC National Syndromic Surveillance Program; Coronavirus Disease 2019 (COVID-19) Cases in U.S.	A number of resources are available from the CDC, including: <ul style="list-style-type: none"> This National Syndromic Surveillance Program (NSSP) landing page, which has links to tools to help epidemiologists find cases of COVID-19, including a resource center and information pages. An overview of the number of COVID-19 cases in the U.S., overall and by state. The webpage shows the national trend in COVID-19 cases by their report date and by the estimated date of illness onset. 	✓					
nCov2019.live Global COVID-19 outlook	This dashboard summarizes number of cases, deceased and recovered, by country in real time and by country as well as world region. There is an option for a map view. The website also includes some rudimentary information on COVID-19.	✓					

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Provider Capacity, Demand, and Testing These data include information about hospital availability and supply, and the location of physicians and other clinicians							
Boston Children's Hospital/Harvard Medical School COVID Near You	This tool uses crowdsourced data to map COVID-19 symptoms and tests by zip code.	✓		✓			
Definitive Healthcare/ ESRI USA Hospital Beds	This GIS feature layer provides information on hospital capacities, including the number of licensed beds, number of staffed beds, and number of ICU beds.		✓		✓		
NPI/ESRI COVID-19 Provider Practice Locations; CDC Social Vulnerability Index 2018	This GIS feature layer contains practice locations of physician and non-physician health care providers. Another GIS feature layer summarizes the 2018 CDC social vulnerability index (SVI) by U.S. county and census tract. The SVI is based on social factors from the U.S. census data including poverty, lack of vehicle access, and crowded housing.		✓		✓		
Penn Medicine COVID-19 Hospital Impact Model for Epidemics	This open-source tool allows hospitals to project new hospital admissions, ICU admissions, and patients requiring ventilation due to COVID-19. Users input data about their hospital and population and modify assumptions related to the spread of COVID-19. The tool then runs an epidemiological SIR (Susceptible, Infected, Recovered) model to project the number of new hospitalizations per day. This tool can be used to create best- and worst-case scenarios to assist with hospital capacity planning. Related information includes user documentation (describing the objective of the app, data inputs, and tool outputs), a GitHub repository (developers can contribute to the tool or branch off to modify or expand on the code), and developer documentation .				✓		
Healthcare Cost Report Information System (HCRIS)	Medicare-certified institutional providers are required to submit an annual cost report to a Medicare Administrative Contractor. The cost report contains provider information such as facility characteristics, utilization data, cost and charges by cost center (in total and for Medicare), Medicare settlement data, and financial statement data. Together with Provider of Service data , these data can be used to measure hospital availability and supply.				✓		
2016/2018 Compendium of U.S. Health Systems (AHRQ)	These data may be useful to link hospitals to health systems and characteristics of health systems.				✓		
Epidemic Calculator	This tool allows users to project exposures, infections, and hospitalizations due to COVID-19. Users input assumptions about COVID-19 transmission and clinical dynamics and the tool uses an epidemiological SEIR (Susceptible, Exposed, Infectious, Removed) model to project the spread of COVID-19 and resulting hospitalizations.					✓	

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Prediction and Preventing Spread							
WHO Novel Coronavirus (COVID-19) Situation	The WHO website contains information for individuals, states, and agencies about how to handle the recent spread of the coronavirus, including news on recent developments as well as guidelines and trainings to prevent virus transmission. This link contains technical guidance for countries, laboratories, and public health agencies regarding the handling of COVID-19 (topics include emergency preparedness and response, guidance on clinical care, risk communication and community engagement, and more).			✓		✓	
Tableau COVID-19 Data Hub	This website is a compilation of several dashboards showing COVID-19-related data. Example available dashboards include a Social Distancing Scorecard, which grades each state's and county's social distancing efforts by comparing mobility before and after COVID-19, and a U.S. map of coronavirus cases.	✓					✓
Kinsa Insights/Oregon State University US Health Weather Map	This dashboard visualizes aggregated temperature data collected from Kinsa Insights' network of Smart Thermometers. The dashboard maps "(1) the trend in how illness levels are changing in the past week, (2) the illness levels we're currently observing, and (3) the degree to which those levels are higher than the typical levels we expect to see at this point in the flu season" at the county level. Note that this dashboard does not track COVID-19 cases directly. This webpage summarizes the technical approach used, including the statistical methods used to compare the method against the Influenza B outbreak in Fall 2019.					✓	
State Policies and Public Health Actions							
Center for Connected Health Policy	This page is a summary of how telehealth policies are changing and what is covered by various public and private payers with the information that has been released. It is a living document that could change frequently as new information and new policies become available or are enacted. It includes information at the federal level and some state-level guidance.					✓	
Medicaid Disaster Response Toolkit	This website contains information for beneficiaries and states that outlines Medicaid policies in the event of a crisis. Information includes Q&As between beneficiaries and Medicaid (such as what to do to enlist additional family members in Medicaid or how to replace a lost Medicaid card); a disaster preparedness toolkit ; a memorandum that provides a high-level summary of the types of Medicaid and CHIP strategies that can be deployed in an emergency situation, as well as an inventory of the various strategies available to states and the action needed to effectuate them; and FAQs for Medicaid and CHIP agencies (on topics such as resources available, emergency preparedness and response, benefit flexibilities, financing flexibilities, and more).					✓	
The College for Behavioral Health Leadership	This page contains links to many resources related to COVID-19, behavioral health, public health, and health administration, in addition to information on upcoming webinars on all of these topics.					✓	

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Other							
NextStrain Genomic epidemiology of novel coronavirus	This is an open-source analysis and visualization of pathogen sequence data for COVID-19.			✓		✓	
Appian COVID-19 Response Management application	This free app helps large organizations (with 1,000 or more employees) monitor the health and safety of their employees during the COVID-19 pandemic. The app allows companies to easily share company policies related to COVID-19; allows employees to report their work status, travel history, and COVID-19-related exposures; and provides a space for employees to offer one another assistance. The application is hosted on the Appian HIP-PA-compliant cloud, protecting employees' health data.					✓	
arXiv The First Public Coronavirus Twitter Dataset	This web page contains an article describing a multilingual Twitter data set about COVID-19. The goal of the authors is that this data set could help track scientific coronavirus misinformation and unverified rumors or enable the understanding of fear and panic—and more. They hope that this data set may contribute to enabling informed solutions and prescribing targeted policy interventions to fight this global crisis. A GitHub repo has details on how to use the API to analyze and access the Twitter data.					✓	

*Due to the rapidly changing situation, the links presented here may not work or the information presented may change.

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