

Google's "COVID-19 Community Mobility Reports" Track Crowding Within Communities (Stanford, 4/15)

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Abstract

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What is the message? Google has created a smart phone GPS tool that allows public health authorities to track changes in mobility within communities. The tool helps quantify the extent of social distancing at a high level, and can help measure the impact of relaxing social distancing requirements in the future. The tool currently reports aggregates of anonymized location data on an opt-in basis. Policy makers may consider allowing for such data collection on an opt-out basis during the COVID-19 public health crisis.

What is the evidence? Experience with the April 2020 launch of Google's GPS tracking tool.

Link: <https://www.google.com/covid19/mobility/>

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GPS Tracking Tools Will Help Track Social Distancing

Adherence to social distancing recommendations is crucial to limit the spread of COVID-19, but there are few tools to track this in real-time. Further, we currently lack specific tools to understand the behaviors within individual communities. Such knowledge can prompt local interventions for communities at risk for continued, unhindered spread of infection.

GPS tools embedded within smartphones can provide a unique resource to address the data needs for effective and meaningful social distance monitoring. Anonymized and aggregated location tracking may provide proof-of-concept that this technology can help to fight the COVID-19 epidemic. Analyses of these data may also provide support for more aggressive monitoring of population health using smartphones.

Google's Tracking Tools

Google's health research organization has developed a relevant set of applications. Google users who opt-in to share their location history are the source of common features such as live traffic information, as well as "Popular Times" for dining and recreational destinations on Google Maps. This same data source is now being used to populate a publicly available report, "**COVID-19 Community Mobility Report**" [<https://www.google.com/covid19/mobility/>]

First published on April 3, 2020, the online resource shows changes in mobility over time for 131 countries. In the US, these data are available down to the state and county level. Mobility is measured by anonymized visits to high-level categories consisting of workplaces, transit stations, grocery stores, retail/recreation locations, and residential locations. Mobility changes are measured in comparison to a baseline of activity in that same region before social distancing was implemented.

Google's Community Mobility Report is being offered to the public to inform local health officials in their response to the COVID-19 epidemic. The report illustrates, for example, that as of April 5, 2020, Santa Clara County, California experienced a 68% reduction in mobility related to "retail and recreation" establishments compared to baseline; at the same time, "residential" mobility increased 19%. The data are timely, with only a two to three day lag. Google has solicited feedback on this tool so that it can consider modifications to improve its usefulness for users.

Using the Data from the Tracking Tool

Correlating Social Distancing to Infection Control

While a threshold of clinically meaningful social distancing by smartphone location tracking is not known, it may be reasonably extrapolated based on contemporaneous reports of new positive COVID-19 diagnoses in the region. In Santa Clara County, where shelter-in-place orders took effect on March 11, the infection rate has remained stable, rather than the exponential growth that was originally projected.^[1] Therefore, health officials of Santa Clara county might use the measures of mobility in this report to better estimate the relationship between the extent of social distancing and the concurrent spread of COVID-19 in this community. Conversely, in regions where infection rates continue to rise, such mobility reports can serve as a more concrete point of reference as public health efforts are intensified.

Assessing social distance relaxation

As local health officials around the globe begin to relax certain social distancing mandates, the data in these reports can help illustrate what is happening in terms of population movement. For example, if staggered return to work is permitted but the report suggests greater mobility than expected, these policies can be reassessed promptly. In addition, the exact patterns of mobility in relation to viral spread could provide critical insights compelling more tailored social distancing efforts specific to local conditions.

Potential for identifying crowding

Currently, the report illustrates mobility changes en bloc for destinations (e.g., “retail and recreation” or “grocery stores”). However, a more detailed mobility report could offer significant value. For example, in regions where socially distanced outdoor activities are still permitted, a more granular breakdown of mobility in public destinations would clarify where there remains unacceptable crowding within a region and consequently merit additional public health efforts. In contrast, if locations providing essential services are experiencing unacceptable crowding, this can inform officials to permit expanded hours of operation to lessen unnecessary clustering, or to facilitate other food or supply delivery mechanisms.

Individual data are not included, but more contact tracing is on the horizon

The current report does not provide data to track individual mobility, to identify social distancing scofflaws, or to permit contact tracing of infected individuals in order to digitally trace transmission routes to identify potentially exposed persons. In the coming months, Google and Apple in a joint partnership will be releasing APIs to enable interoperable apps for opt-in contact tracing of infected persons in collaboration with public health authorities. [2]

Looking Forward

Google's Community Mobility Reports have the potential to offer the crucial data needed to understand population movements, effectively monitor adherence to social distancing policies within communities, and better manage the spread of COVID-19. An opt-in service for tracking individuals, while acceptable for marketing and other convenience smartphone features, may be limited in this time of crisis. If these data prove useful in monitoring the epidemic, policy makers should consider whether anonymized mobility data should be collected through an opt-out basis during this time.

References

[1] <https://www.sccgov.org/sites/covid19/Pages/home.aspx#cases>

[2] <https://www.apple.com/newsroom/2020/04/apple-and-google-partner-on-covid-19-contact-tracing-technology/>