

www.worldpop.org/covid19

WorldPop COVID-19 research and data

Over the last five years, we have conducted a series of influential research projects to support the fight against COVID-19 and its variants of concerns by: i) using nearly real-time global travel data to inform the early spread risk of SARS-CoV-2; ii) quantifying the effects of non-pharmaceutical interventions and vaccination to contain/mitigate the transmission in various demographic and socioeconomic settings across waves, and informing how to adopt coordinated strategies and mobility-based spatial sampling for precise public health responses; and iii) measuring mobility changes and resilience in the context of coupled pandemic and extreme weather events.

Evaluating the early spread risk of COVID-19 and variants

January 25th, 2020 (Lunar New Year's Day)

Preliminary risk analysis of 2019 novel coronavirus spread within and beyond China

Los Angel

olume of traveller 0 50,000 100,000 200,000

Shengjie Lai^{1*}, Isaac I. Bogoch², Alexander Watts^{3,4}, Kamran Khan^{2,3,4}, Andrew Tatem^{1*}

¹WorldPop, School of Geography and Environmental Science, University of Southampton, UK ²Department of Medicine, University of Toronto, Toronto, Canada ³Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, Canada

Updated version on MedArxiv Updated on February 5th, 2020

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Assessing effects of interventions and response strategies



⁴Bluedot, Toronto, Canada *Email: Shengjie.Lai@soton.ac.uk; A.J.Tatem@soton.ac.uk

Longitude

Yang et al, JTM 2020; Lai et al. DSM 2023.











scientific data

Check for upda **OPEN** High-resolution estimates of social DATA DESCRIPTOR distancing feasibility, mapped for urban areas in sub-Saharan Africa Heather R. Chamberlain 💿 🖾, Attila N. Lazar 💿 & Andrew J. Tatem 💿

> Ease of social distancing index ≤1 ≤2 ≤3 ≤4 ≤5 ≤6 ≤7 ≤8 ≤9 NoData

Article Open access Published: 29 August 2023

Effects of public-health measures for zeroing out different SARS-CoV-2 variants









Untangling the changing impact of nonpharmaceutical interventions and vaccination on European COVID-19 trajectories

Yong Ge<mark>@ ^{1,2,14⊠}, Wen-Bin Zhang</mark>® ^{1,2,3,14}, Xilin Wu<mark></mark> ^{1,2,14}, Corrine W. Ruktanonchai® ^{4,14}, Haiyan Liu⁵, Jianghao Wang @ ^{1,2}, Yongze Song @ ⁶, Mengxiao Liu^{1,2}, Wei Yan^{7,14}, Juan Yang @ ^{8,9}, Eimear Cleary¹⁰, Sarchil H. Qader^{10,11}, Fatumah Atuhaire^{10,12}, Nick W. Ruktanonchai⁴, Andrew J. Tatem 💿 ^{10 🖂} &





Risk of SARS-CoV-2 Transmission among air and train Passengers





Mobility-based social contacts and spatial sampling improves detection and control of COVID-19

nature human behaviour Integrated vaccination and physical distancing interventions to prevent future COVID-19 waves

> ------ Super-tier ----- Tier-1 ----- Tier-2 ----- Tier-3 ----- Tier-4 ----- Tier-5

Outflow intensity

• 1.58 - 3.38

9 3.38 - 5.99 9.29 - 9.29

Check for updates



Measuring mobility changes and resilience in the context of coupled pandemic and extreme weather events

Changes in internal mobility by country in 2020-2021

Combined and delayed impacts of epidemics and extreme weather on mobility recovery

Jan 10

Dec 30

million delayed

B. March 21 – April 20



Mainland China used Baidu data, taking Jan 5 – 22, 2020 as a baseline. All other 134 countries/territories/areas used Google data, taking Jan 5 – Feb 15, 2020 as a baseline.

Lai S et al, Engineering 2021; Li & Lai et al, Nature 2021



Coronavirus: What's the risk of Covid **NEWS** on public transport?









01 Jul

01 Oct

Tian S et al, NSR 2021; Liu H et al, SCS 2023



tracity mobility intensity

Non-studied prefectures

01 Jul