

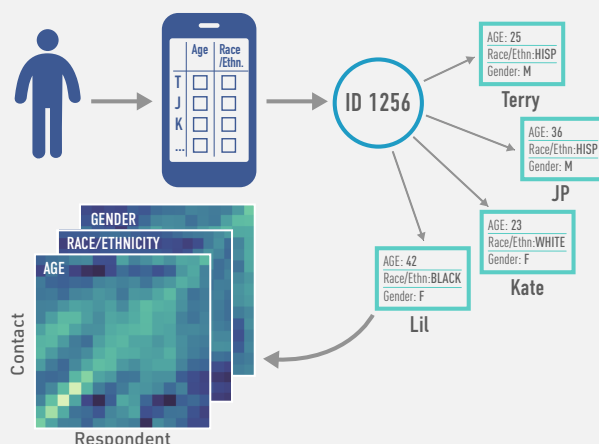
## Observatory of US Contact Patterns

Contacts between individuals are not only the fabric of our social environment but also the means used by a pathogen to spread in the population. Modeling the transmission processes of infectious diseases requires understanding of the complex social contact dynamics of modern societies, which result in highly heterogeneous risks of infection. Our approach will provide novel and crucial information to inform modeling and analytic techniques, thus resulting in higher forecasting and prediction capabilities as well as more accurate “in-silico” evaluations of public health interventions.

We developed a cross-sectional, diary-based survey that collects data on the contact patterns of the US population. The obtained sample is statistically representative of the US population by age, gender, and race/ethnicity. The survey was administered online by Ipsos, a widely used data supplier with experience in health-related surveys<sup>1</sup>, to their established panel of survey responders (panelists). A contact was defined as a person with whom the participant had an in-person, two-way conversation, exchanging 5 or more words, and/or had physical contact<sup>2,3</sup>. Individuals of all ages were invited to participate. For participants 0-8 years old, parents/guardians completed the survey. Participants 9-12 years old completed the survey with their parent/guardian. Participants 13-17 years old were asked to complete the survey on their own with parent/guardian consent. To address potential language barriers, the survey instrument was offered in English and Spanish, allowing participants to complete the questionnaire in their preferred language.

### Public health relevance

Provides public health officials and policymakers with essential insights into the contact patterns of diverse U.S. populations, enabling the design of targeted and effective strategies for mitigating disease transmission across age, gender, and racial/ethnic groups.



### What's new

**Approach:** Conducting multiple waves of a survey that provides regular snapshots of contact patterns in the US population. The survey is conducted on an established panel of individuals that is nationally representative by age, sex and race/ethnicity. For each participant, the survey collects detailed information about the number and characteristics of their contacts.

**Advancements:** Quantifying US contact patterns in different socio-demographic and economic contexts for all ages and racial/ethnic groups. The obtained estimates will be integrated into mathematical models to provide situational awareness of human behavior relevant for transmission of the respiratory and other close-contact pathogens.

### Key takeaways

- Participants reported an average of 7.4 contacts per day, lower than pre-COVID estimates for other high-income countries. This reflects social changes brought by the COVID-19 pandemic such as changes in workplace organization, changes in transportation, and shift in social behavior.
- The number of contacts varied with age, with school age individuals reporting the largest number of contacts and older adults reporting the lowest.
- Marginal difference in the number of contacts between male and female respondents is observed on average.

1. Ipsos M. Healthy Ireland survey 2015: summary of findings. Department of Health (DoH); 2016.

2. Zhang J, Litvinova M, Liang Y, et al. Changes in contact patterns shape the dynamics of the COVID-19 outbreak in China. *Science*. 2020;368(6498):1481-1486.

3. Litvinova M, Liu Q-H, Kulikov ES, Ajelli M. Reactive school closure weakens the network of social interactions and reduces the spread of influenza. *Proceedings of the National Academy of Sciences*. 2019;116(27):13174-13181.