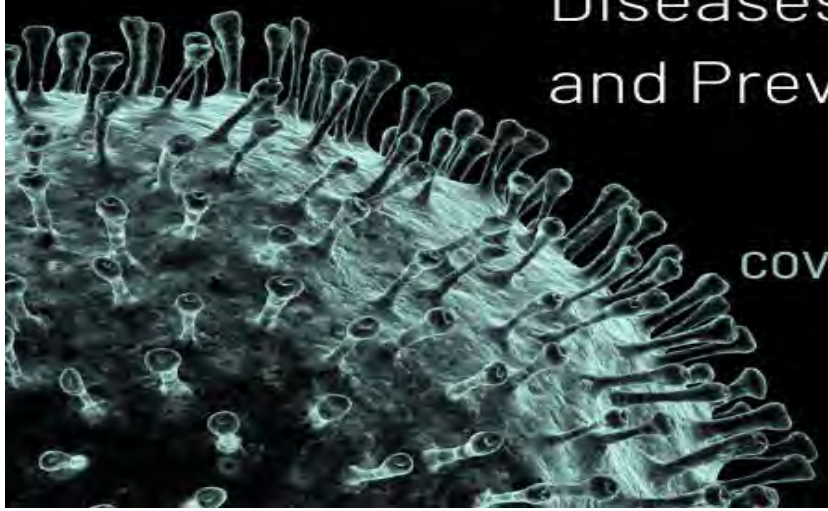
COVID-19 Conversations

Nancy Messonnier, MD

Director, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention



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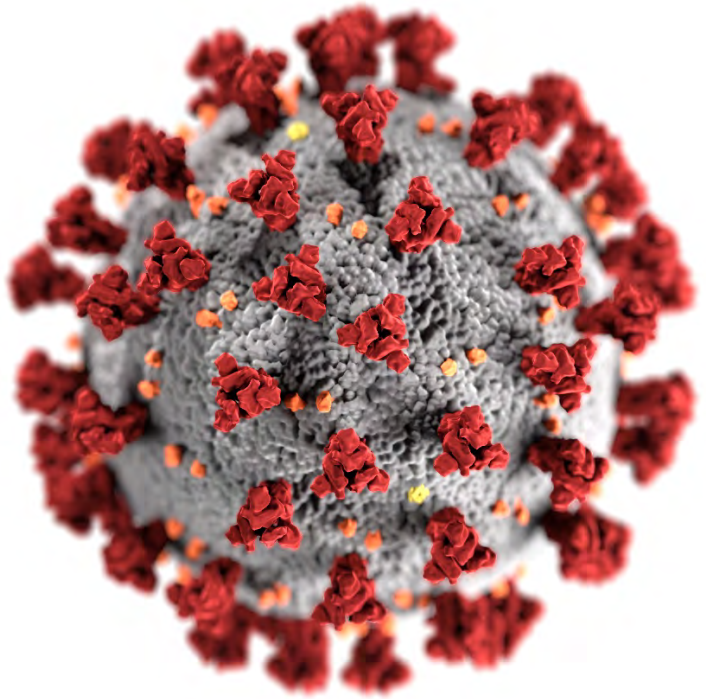
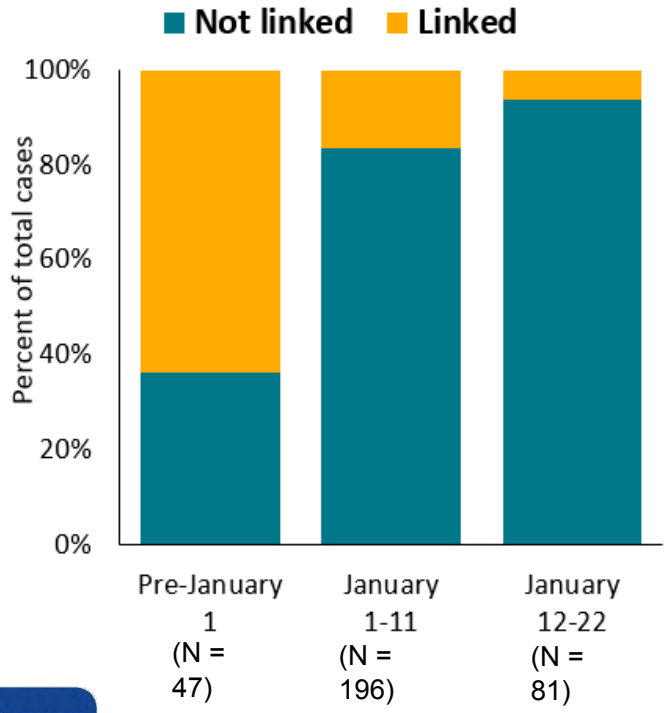
The Science of Social Distancing



Dr. Nancy Messonnier, Director
CDC's National Center for Immunization and Respiratory Diseases

For more information: **www.cdc.gov/COVID19**

Linkage of Early COVID-19 Cases* to Huanan Seafood Wholesale Market – Wuhan, China



https://www.healthpolicy-watch.org/

Adapted from Li 2020, N Engl J Med; DOI: 10.1056/NEJMoa2001316.
* Total N=324 persons with complete exposure histories among 425 total cases

Early Distribution of Cases:

China as of 20-Jan-2020

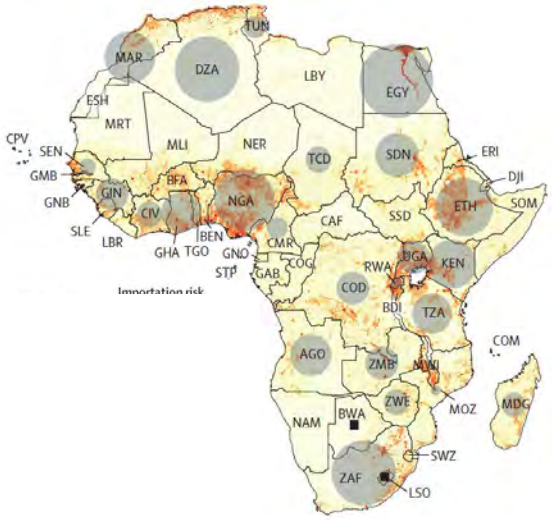
Widespread rapid dissemination in our hyper-connected world creates real-time challenges to prediction analyses

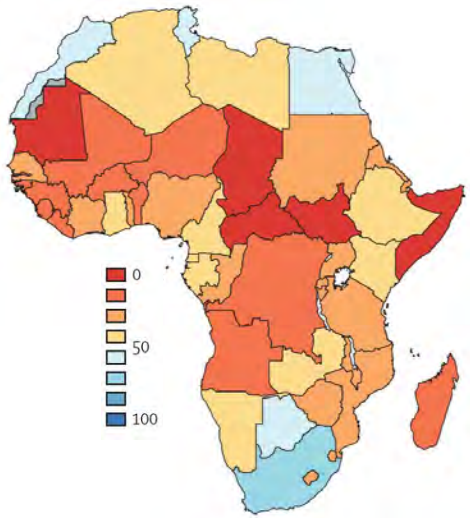
Modeling Likelihood of Infection Outside Mainland China

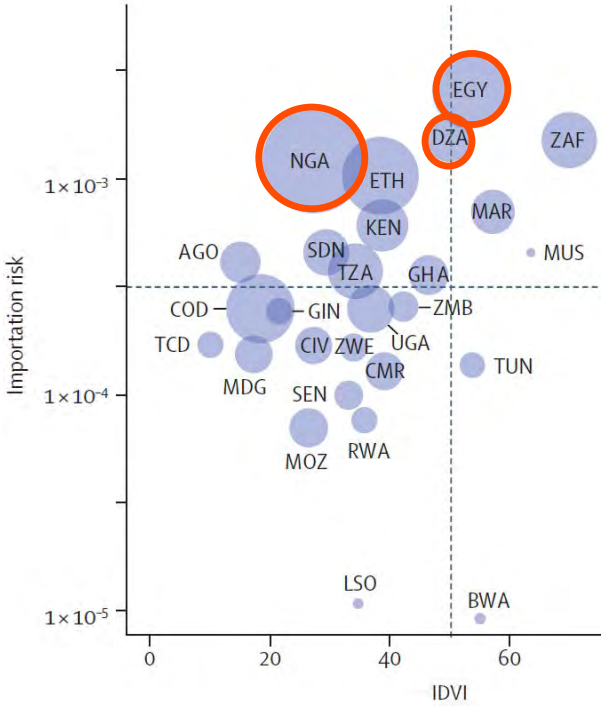
Air travel volume inbound From China provinces

Infectious disease vulnerability index (IDVI)

Contextualized risk

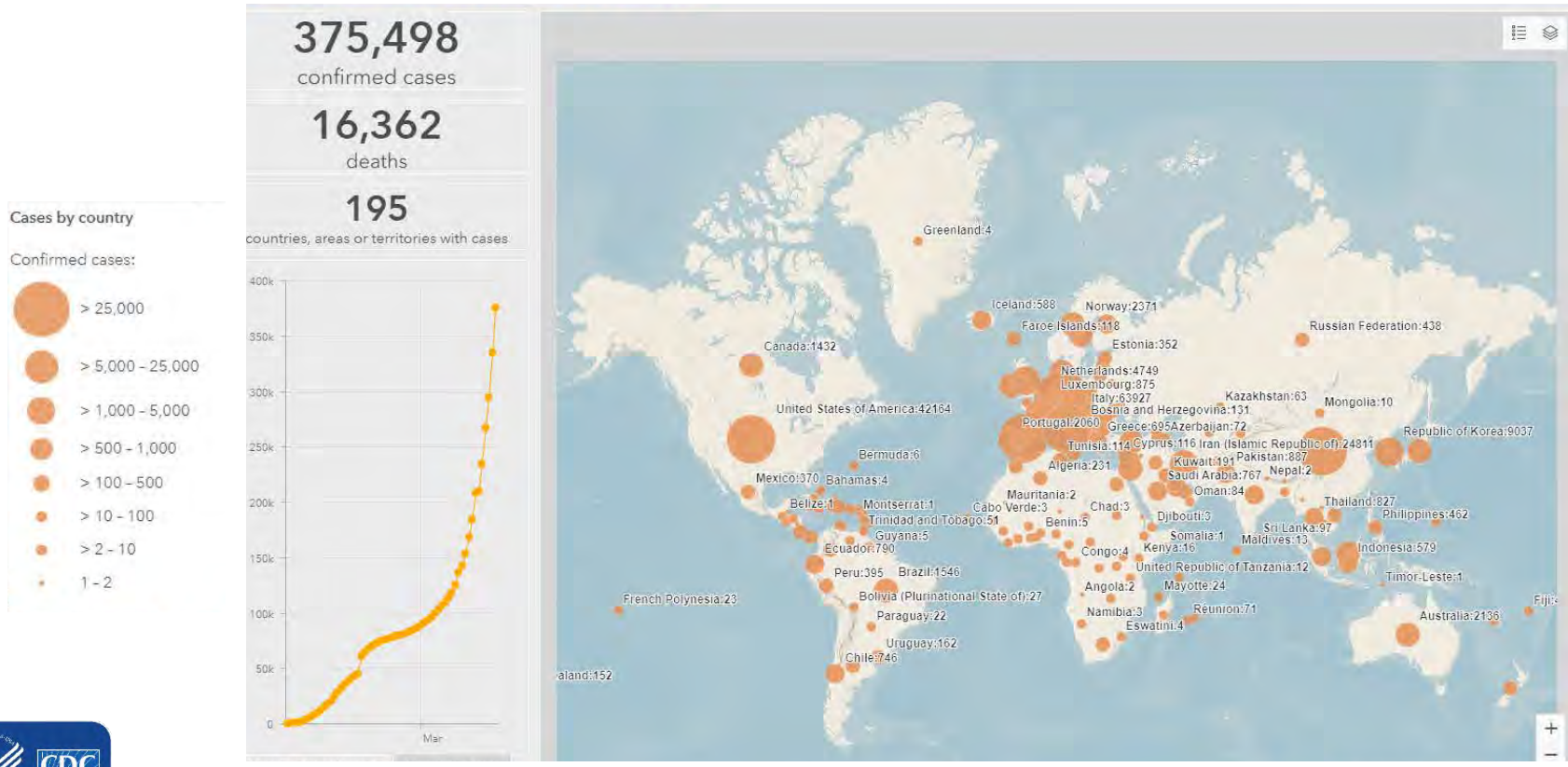






Gilbert 2020, Lancet; https://doi.org/10.1016/S0140-6736(20)30411-6

Worldwide Cases as of March 24, 2020



Source: https://experience.arcgis.com/experience/685d0ace521648f8a5beeeee1b9125cd

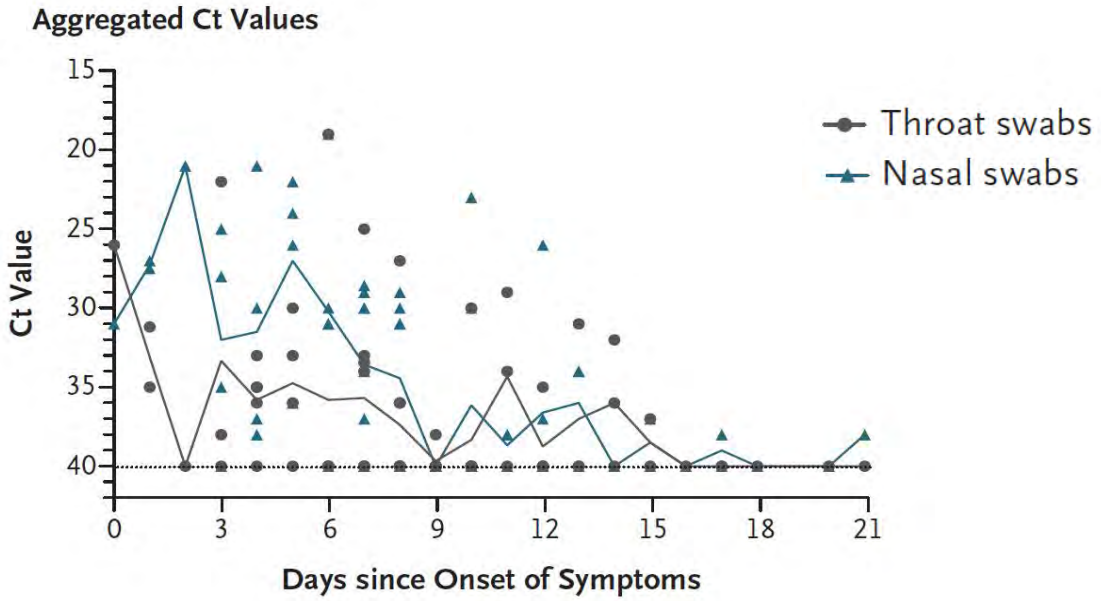
SARS-CoV-2 in Human Samples and Transmission

- **Respiratory secretions – main mode of transmission**
  - Infection is spread through respiratory droplets in the air and that land on surfaces
  - Transmission from persons who are pre-symptomatic or who may have asymptomatic infection is possible but the contribution of these infections to overall numbers of illness is not fully known at this time.
- **Stool – unlikely at this time**
  - Readily detectable by RT-PCR but only one report of replication-competent virus cultured
- **Perinatal – no transmission yet observed**
  - Not detected by RT-PCR in amniotic fluid, cord blood, neonatal throat swab, breast milk

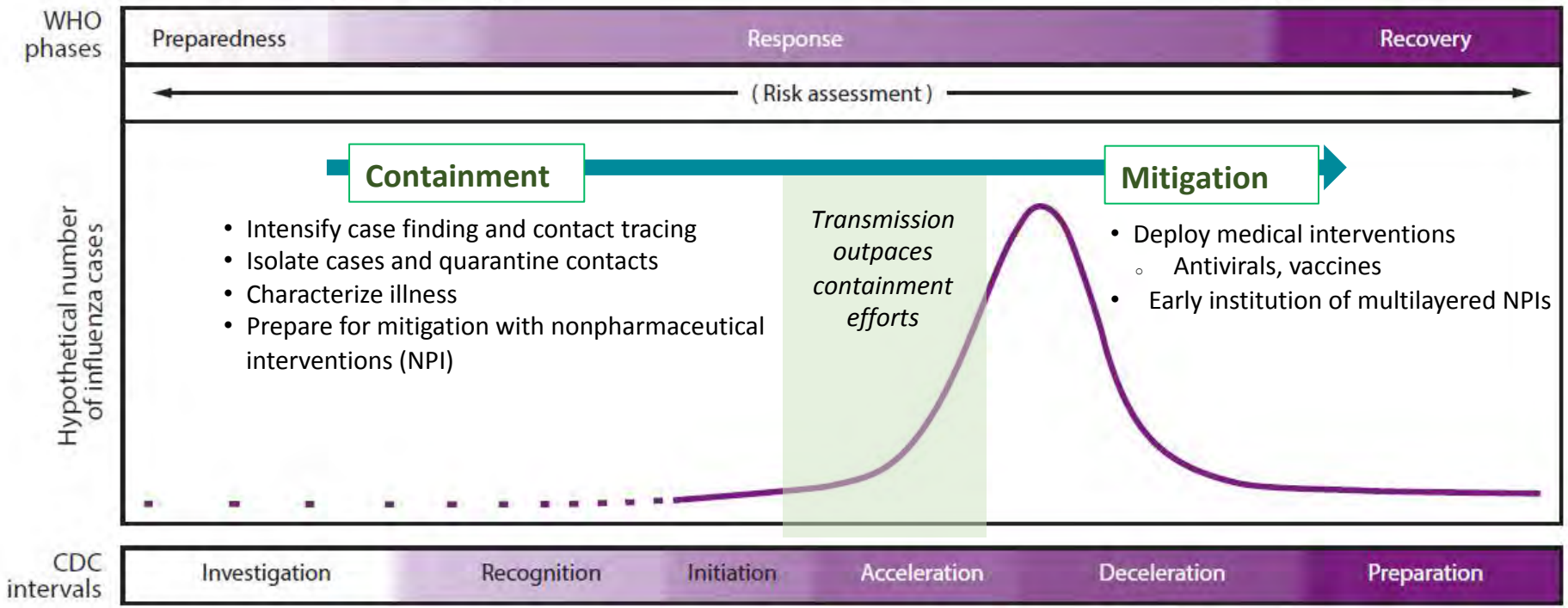
Zou 2020, N Engl J Med; DOI: 10.1056/NEJMc2001737. Pan 2020 , Lancet Infect Dis; https://doi.org/10.1016/S1473-3099(20)30113-4.
Zhang 2020; China CDC Weekly: http://weekly.chinacdc.cn/en/article/id/ffa97a96-db2a-4715-9dfb-ef662660e89d. Chen 2020; Lancet: https://doi.org/10.1016/ S0140-6736(20)30360-3
Zhu 2020l Transl Pedtr: http://dx.doi.org/10.21037/tp.2020.02.06

Viral Shedding Greatest At Time Symptoms Start

- SARS-CoV-2 viral loads in 17 symptomatic patients
- No data regarding duration of replication-competent virus shedding (e.g., culture)



Zou 2020, N Engl J Med; DOI: 10.1056/NEJMc2001737



Adapted from: Holloway 2014, MMWR Recomm Rep;63(No. RR-6). Qualls 2017, MMWR Recomm Rep; 66(No. RR-1). Jernigan 2020, MMWR Early Release: February 25, 2020.

Nonpharmaceutical Interventions (NPIs) = "Social Distancing"

At Home

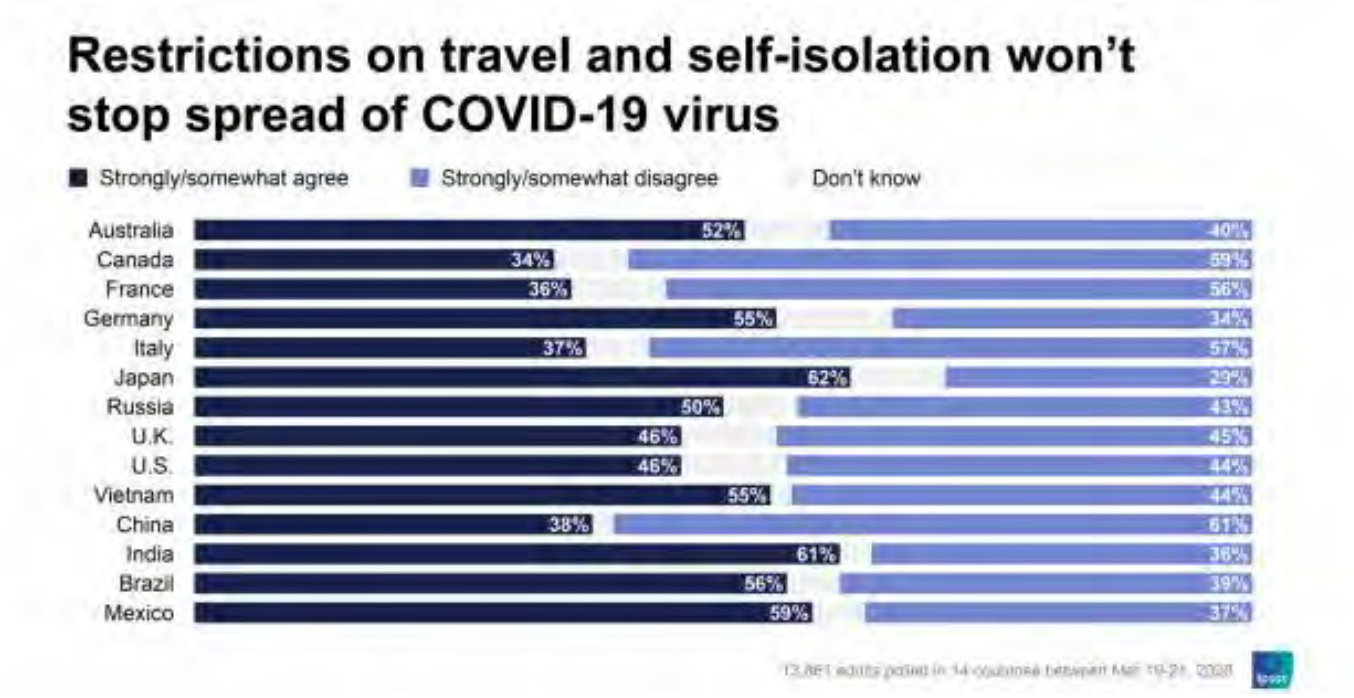
At School

At Work

At a Gathering

https://www.cdc.gov/nonpharmaceutical-interventions/index.html

Worldwide Sentiment That Travel Restrictions and Self-isolation May Not Stop COVID-19



Souce: https://www.ipsos.com/sites/default/files/ct/news/documents/2020-03/coronavirus-wave-5-pr-ipsos.pdf

Nonpharmaceutical Interventions (NPIs): "Personal Action"

www.cdc.gov/handwashing

Schools, Pandemics, and School Closures

- School reopening often heralds increased influenza activity
  - Host factors: age-specific susceptibility, viral shedding, behaviors
  - Environmental factors: very high social density in an age-assorted setting
- Timing of influenza-related school closures relative to influenza spread*
  - Reactive: after flu is widespread
  - Pre-emptive: before disease becomes widespread within school
- Only pre-emptive coordinated closures are considered an NPI*
  - Evidence on effectiveness: historic, modeling, & observational studies*[1]

*Per 2017 Community Mitigation Guidelines: https://www.cdc.gov/mmwr/volumes/66/rr/pdfs/rr6601.pdf.
[1]See additional information in Technical Report 2, Appendix 5,
NPI Body of Evidence Summary Table: https://stacks.cdc.gov/view/cdc/44314

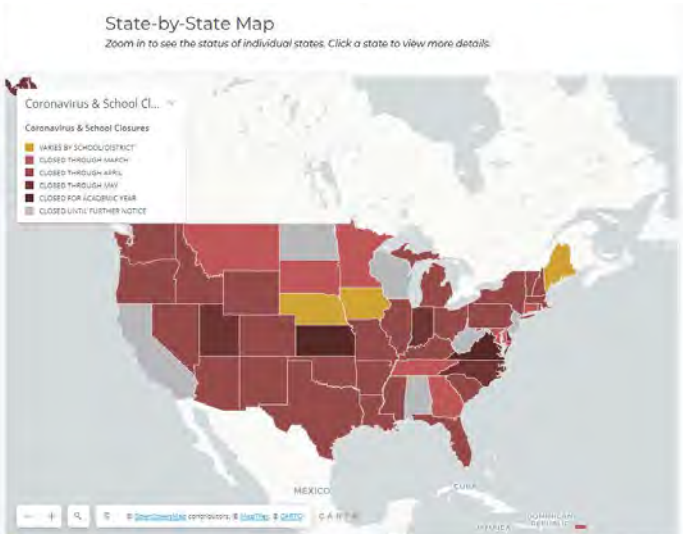
TULSA WORLD

State Board of Education OKs distance learning for remainder of 2019-20 because of COVID-19

FOX 5 NEWS

MD Students May Be Home Longer Amid COVID-19 outbreak, School Systems Prepare

EDUCATION WEEK



Chalkbeat

About Us Jobs Board

Essential education reporting in NEW YORK

Newsletters

The 'new reality' of coronavirus: Here's what NYC's first day of remote learning looked like

By Alex Zimmerman, Christina Veiga, Reema Amin 2 days ago

Naomi Peña's son Lucas completes a mindfulness exercise.

Epidemiological and Modeling Studies Support Social Distancing in Workplaces

Ahmed *et al. BMC Public Health* (2018) 18:518
https://doi.org/10.1186/s12889-018-5446-1

BMC Public Health

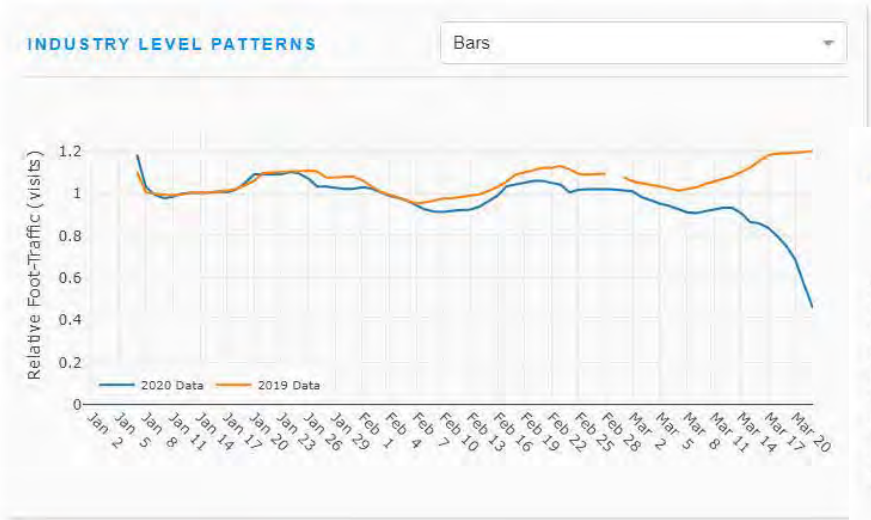
RESEARCH ARTICLE Open Access

Effectiveness of workplace social distancing measures in reducing influenza transmission: a systematic review

Faruque Ahmed*, Nicole Zviedrite and Amra Uzicanin

- Effect is more pronounced when workplace social distancing is combined with other NPIs
- Effectiveness declines with delayed triggering of workplace social distancing or lower compliance
- Results are mainly based on modeling; more empirically parametrized models and epidemiological studies needed

General Public is Heading Mass Gathering and Travel Messages



Souce: https://www.safegraph.com/dashboard/covid19-commerce-patterns?utm_source=newsletter&utm_medium=email&utm_campaign=covid_dashboard

Mass Gathering in Densely Populated Area Gave Rise to 2009 H1N1 Outbreaks in Mexico

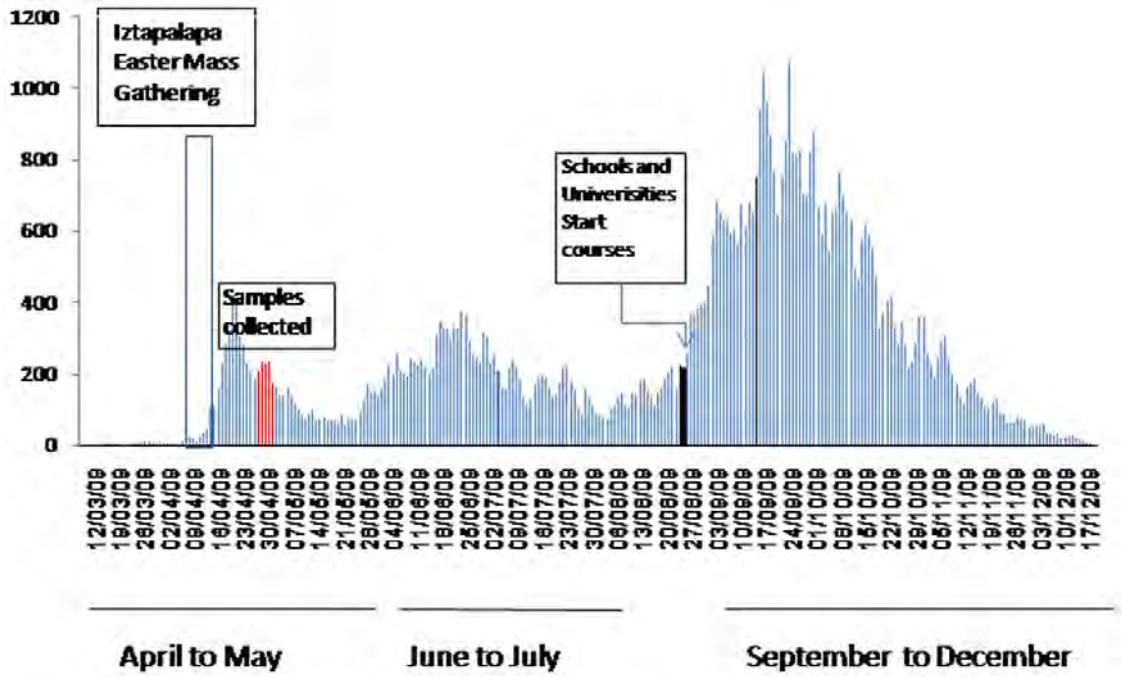
PLoS one

Inside the Outbreak of the 2009 Influenza A (H1N1)v Virus in Mexico

Hector M. Zepeda-Lopez[1], Lizbeth Perea-Araujo[1], Angel Miliar-Garcia[1], Aaron Dominguez-Lopez[1], Beatriz Xoconostle-Cázarez[2], Eleazar Lara-Padilla[1], Jorge A. Ramirez Hernandez[3], Edgar Sevilla-Reyes[3], Maria Esther Orozco[4], Armando Ahued-Ortega[5], Ignacio Villaseñor-Ruiz[6], Ricardo J. Garcia-Cavazos[1], Luis M. Teran[3]*

Abstract

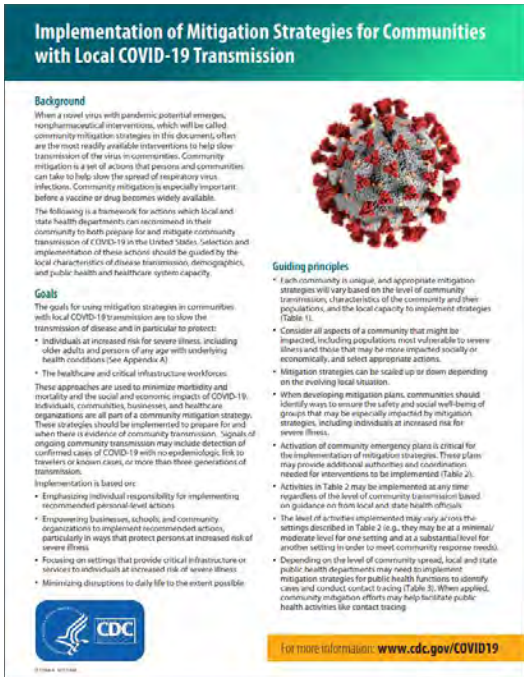
Introduction



Source: Zepeda-Lopez HM, et al. 2010; PLoS ONE 5(10): e13256.

Social Distancing Works

- Experience is based on influenza pandemics, but data shows that community interventions do work
- Communities are interconnected systems.
- Actions taken in one sector may have a domino effect.
- Critical that community plans account for interconnection when the country begins a staged return to normal activity.



Implementation of Mitigation Strategies for Communities with Local COVID-19 Transmission

Background

When a novel virus with pandemic potential emerges, nonpharmaceutical interventions, which will be called community mitigation strategies in this document, often are the most readily available interventions to help slow transmission of the virus in communities. Community mitigation is a set of actions that persons and communities can take to help slow the spread of respiratory virus infections. Community mitigation is especially important before a vaccine or drug becomes widely available.

The following is a framework for actions which local and state health departments can recommend in their community to both prepare for and mitigate community transmission of COVID-19 in the United States. Selection and implementation of these actions should be guided by the local characteristics of disease transmission, demographics, and public health and healthcare system capacity.

Goals

The goals for using mitigation strategies in communities with local COVID-19 transmission are to slow the transmission of disease and in particular to protect:

- Individuals at increased risk for severe illness, including older adults and persons of any age with underlying health conditions (See Appendix A)
- The healthcare and critical infrastructure workforces

These approaches are used to minimize morbidity and mortality and the social and economic impacts of COVID-19. Individuals, communities, businesses, and healthcare organizations are all part of a community mitigation strategy. These strategies should be implemented to prepare for and when there is evidence of community transmission. Signals of ongoing community transmission may include detection of confirmed cases of COVID-19 with no epidemiologic link to travelers or known cases, or more than three generations of transmission.

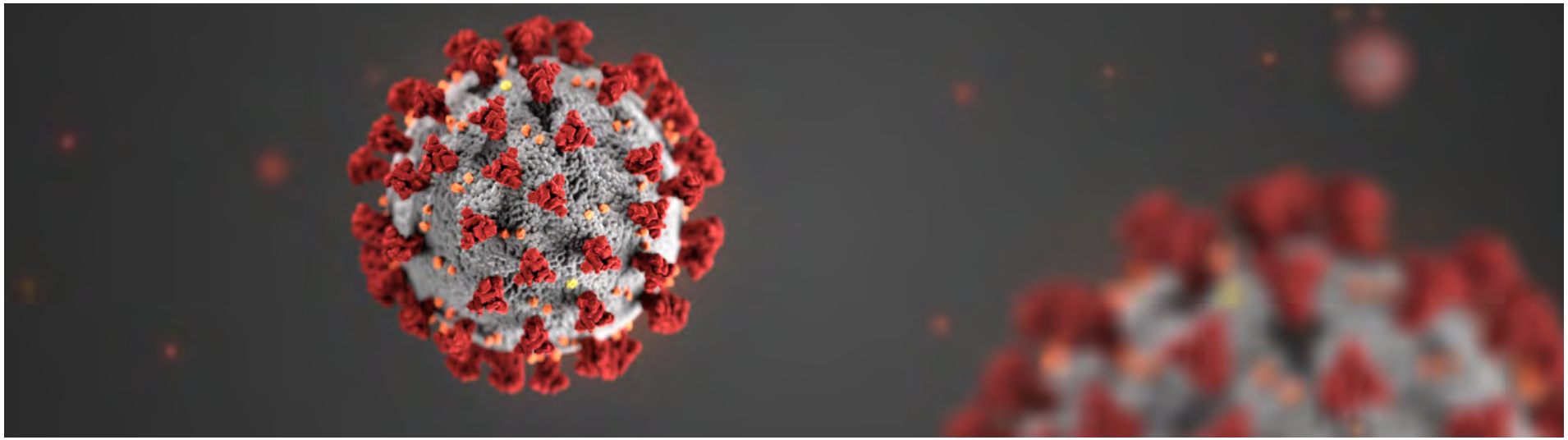
Implementation is based on:

- Emphasizing individual responsibility for implementing recommended personal-level actions
- Empowering businesses, schools, and community organizations to implement recommended actions, particularly in ways that protect persons at increased risk of severe illness
- Focusing on settings that provide critical infrastructure or services to individuals at increased risk of severe illness
- Minimizing disruptions to daily life to the extent possible

Guiding principles

- Each community is unique, and appropriate mitigation strategies will vary based on the level of community transmission, characteristics of the community and their populations, and the local capacity to implement strategies (Table 1).
- Consider all aspects of a community that might be impacted, including populations most vulnerable to severe illness and those that may be more impacted socially or economically, and select appropriate actions.
- Mitigation strategies can be scaled up or down depending on the evolving local situation.
- When developing mitigation plans, communities should identify ways to ensure the safety and social well-being of groups that may be especially impacted by mitigation strategies, including individuals at increased risk for severe illness.
- Activation of community emergency plans is critical for the implementation of mitigation strategies. These plans may provide additional authorities and coordination needed for interventions to be implemented (Table 2).
- Activities in Table 2 may be implemented at any time regardless of the level of community transmission based on guidance on from local and state health officials.
- The level of activities implemented may vary across the settings described in Table 2 (e.g., they may be at a minimal/moderate level for one setting and at a substantial level for another setting in order to meet community response needs).
- Depending on the level of community spread, local and state public health departments may need to implement mitigation strategies for public health functions to identify cases and conduct contact tracing (Table 3). When applied, community mitigation efforts may help facilitate public health activities like contact tracing

For more information: www.cdc.gov/COVID19



For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov