Rethinking our approach to health after a pandemic Lessons learned from Covid-19

Sandro Galea

Boston University School of Public Health



1. The Covid-19 pandemic







'The Plague' Is A Top Seller As Fiction Sales Drop During Coronavirus Shutdowns



Ariel Shapiro Former Staff Business

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Daily Trends in Number of COVID-19 Cases in The United States Reported to CDC



Daily Trends in Number of COVID-19 Deaths in The United States Reported to CDC



Sources: State and local health agencies. Population and demographic data from Census Bureau. About this data

https://www.nytimes.com/interactive/2020/us/coronavirus-us-cases.htm

https://www.businessinsider.com/chart-us-weekly-coronavirus-deaths-compared-heart-disease-cancer-flu-2020-4

(SILRON)

PARKING

XX



EARLY EDITION

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NEW YORK, SUNDAY, MAY 24, 2020

Che New York Times

U.S. DEATHS NEAR 100,000, AN INCALCULABLE LOSS

They Were Not Simply Names on a List. They Were Us.

Numbers alone cannot possibly measure the impact of the coronavirus on America, whether it is the number of patients treated, jobs interrupted or lives cut short. As the country nears a grim milestone of 100,000 deaths attributed to the virus, The New York Times scoured obituaries and death notices of the victims. The 1.000 people here reflect just 1 percent of the toll. None were mere numbers.

Patricia Dowd, 57, San Jose, Calif., auditor in Silicon Valley · Marion Krueger, 85, Kirkland, Wash., greatgrandmother with an easy laugh · Jermaine Ferro, 77, Lee County, Fla., wife with little time to enjoy a new marriage · Cornelius Lawyer, 84, Bellevue, Wash., sharecropper's son · Loretta Mendoza Dionisio, 68, Los Angeles, cancer survivor born in the Philippines · Jordan Driver Havnes, 27, Cedar Rapids, Iowa, generous young man with a delightful grin · Patricia

could be a real jokester · Michael Sorkin, 71, New York City, champion of social justice through architecture George Valentine, 66, Washington, D.C., lawyer who mentored others Susan McPherson Gottsegen, 74, Palm Beach, Fla., loval and generous friend to many · Andreas Koutsoudakis, 59 New York City, trailblazer for TriBeCa Bob Barnum, 64, St. Petersburg, Fla. leader in Florida Pride events · Noel Sinkiat, 64, Olney, Md., nurse planning for retirement · Thomas E. Anglin, 85, Cumming, Ga., created many wonderful memories for his family . Robert Manley Argo Jr., 75, South Bay, Calif. member of Del Amo Flyers · Michael McKinnell, 84, Beverly, Mass., architect of Boston's monumental City Hall Huguette Dorsey, 94, Somerville, N.J., coached several championship-winning junior high girls basketball teams · Lynne Sierra, 68, Roselle, Ill., grandmother who was always full of ideas Louvenia Henderson, 44, Tonawanda, N.Y., proud single mother of three Carol Sue Rubin, 69, West Bloomfield Mich., loved travel, mahjong and crossword puzzles · Marion Lucille Kujda, 92, Royal Oak, Mich., would use chalk and oil paints to capture family portraits · Alice Chavdarian, 92, Michigan, loving, generous and adventurous spirit · Bassey Offiong, 25, Michigan, saw friends at their worst but

statesman in the construction industry · Clair Dunlap, 89, Washington, pilot still teaching people to fly at 88 Marylou Armer, 43, Sonoma Valley, Calif., veteran police detective · Regina D. Cullen, 81, Shrewsbury, Mass., small in stature but strong in spirit . Sandra Santos-Vizcaino, 54, New York City, beloved public school teacher · Frank Gabrin, 60, New York City, emergency room doctor who died in husband's arms . Sterling E. Matthews, 60, Midlothian, Va., cancer survivor who served as a deacon · Alby Kass, 89, California, lead singer of a Yiddish folk group · Roger Eckart, 78, Indiana, retired firefighter and old-school barber · Martin Douglas, 71, New York City, maestro of a steel-pan band · Daniel Spector, 68, Memphis, mentor to other Memphis artists · Mary Minervini, 91, Oak Lawn, Ill., sign-language interpreter · Salomon S. Podgursky, 84, New Jersey, loved to figure out how things worked · Dale E. Thurman, 65, Lexington, Ky., tailor known for his exacting work and strong opinions · Ellis Marsalis, 85, New Orleans, jazz pianist and patriarch of a family of musicians · Richard Passman, 94, Silver Spring, Md., rocket engineer in the early days of supersonic flight · David Driskell, 88, Hyattsville, Md., champion of African-American art Bucky Pizzarelli, 94, Saddle River, N.J.,

Vincent Lionti, 60, New York City, Met Opera violist and youth orchestra conductor · Ann Youngerman Smoler, 87, New York City, had a passion for social justice · Thomas Waters, 56, New York City, armed the affordable housing movement with data and analysis · Luke Workoff, 33, Huntington, N.Y., his relentless passion was for his family and friends · José Diaz-Ayala, 38, Palm Beach, Fla., served with the Palm Beach County Sheriff's Office for 14 years · Antonio Nieves, 73, Chicago, always seemed to be busy with some home project . Jeanne Hammond Byrnes, 97, Danbury, Conn., received numerous awards for her accounting skills · Alice Coopersmith Furst, 87, Kentfield, Calif., in the first class of girls admitted to the Bronx High School of Science · Bobby Lee Barber, 84, Buckley, Wash., Seahawks season-ticket holder · Thomas A. Adamavich, 78, Sheboygan, Wis., especially proud of his Lithuanian heritage · Kyra Swartz, 33, New York, volunteered for pet rescue organizations . Rhoda Hatch, 73, Chicago, first in her family to graduate college · Regina Dix-Parsons, 75, Schenectady, N.Y., stalwart church gospel singer · Lakisha Willis White, 45, Orlando, Fla., was helping to raise some of her dozen grandchildren · Barbara Yazbeck Vethacke, 74, St. Clair Shores, Mich.,

seph F. Kelly, 81, New York City, did two tours through the Panama Canal to Antarctica · John Prine, 73, Nashville, country-folk singer who was a favorite of Bob Dylan · Perry Buchalter, 63, Florida, quiet hero · Monica Maley, 74, Rehoboth Beach, Del., loved animals, had dogs and cats, and rode horses · Thomas Tarbell Russell, 83, Longmeadow, Mass., mentored by the computer science pioneer Grace Hopper · Ruth Skapinok, 85, Roseville, Calif., backyard birds were known to eat from her hand . Faralyn Havir, 92, Minnesota, her favorite thing was meeting new people · Torrin Jamal Howard, 26, Waterbury, Conn., gentle giant, athlete and musician · James O'Brien Johnson, 74, Joplin, Mo., pastor of Mt. Sinai Church of God in Christ Joseph W. Hammond, 64, Chicago, stopped working to look after his aging parents . Morris Loeb, 90, Northbrook, Ill., endlessly curious, never really finished · Dante Dennis Flagello, 62, Rome, Ga., his greatest accomplishment was his relationship with his wife · Tommie Adams, 71, Chicago, moved antiques for more than 25 vears · Myra Helen Robinson, 57, Detroit, more adept than many knew Roger Mckinney-Wagner, 73, Lowell, Mass., professor at the Salter School

Novominsker Hasidic dynasty · Jo- | 72. Bristol, Conn., loved writing birthday and holiday cards, poems and lists · Charles Constantino, 86, Menlo Park, N.J., worked 40 years for The New York Times · Ben Doherty, 83, Boston, stockbroker who founded Doherty Financial Services · John Horton Conway, 82, New Brunswick, N.J., mathematician known as the "magical genius" · Stanley Chera, 77, New York City, developer and friend of the president · Robby Browne, 72, New York City, Realtor and philanthropist who socialized with celebrities · Wynn Handman, 97, New York City, acting teacher and a founder of the American Place Theater · Adam Kovacs, 72, New York City, cartoonist and an expert on musicals · Peter Brown, 53, New Jersey, manager of the S.W. Brown & Son Funeral Home · Irene Gasior, 94, Pennsylvania, great-grandmother with a flair for pizzelles · Stanley L. Morse, 88, Stark County, Ohio, trombonist who once turned down an offer to join Duke Ellington's orchestra · Margaret Laughlin, 91, Massachusetts, had a mystic's direct sense of wonder and oneness · Cynthia Whiting, 66, La Plata, Md., retiree determined to spoil her granddaughter Steve Joltin, 75, Rockville, Md., I.T. manager with "an eve for beautiful and unusual things" . Gerald Glenn, · Sean Christian Keville, 47, New Prov- 66, Richmond, Va., police officer

One day, there were no patients," Dr. Esteban Ortiz said of the covid outbreak in Guayaquil. "The next, there were five thousand looking for beds in intensive-care units. 99

2. So what did not go well during Covid-19?

- 1. Overall burden
- 2. Inequities in burden
- 3. Social fracturing

1. Overall burden

- 2. Inequities in burden
- 3. Social fracturing



https://www.nytimes.com/interactive/2021/world/covid-cases.html

Cumulative U.S. Covid-19 deaths per capita are highest among other large, high-income countries

Several countries had higher per capita Covid-19 deaths earlier in the pandemic, but the U.S. death toll now exceeds that of peer nations.



Sources: New York Times database of reports from state and local health agencies (U.S. deaths); The Center for Systems Science and Engineering at Johns Hopkins University (world deaths); World Bank (world populations); United States Census Bureau (U.S. population) • Note: Countries shown are those with the highest gross national income per capita among countries with a population of more than 10 million people.



FIGURE 2. Provisional* number of leading underlying causes of death⁺ — National Vital Statistics System, United States, 2020

* National Vital Statistics System provisional data are incomplete. Data from December are less complete due to reporting lags. Deaths that occurred in the United States among residents of U.S. territories and foreign countries were excluded.

[†] Deaths for which COVID-19 was a contributing, but not the underlying, cause of death are not included in this figure.



Figure 1. Life expectancy at birth, by sex: United States, 2000-2020

NOTES: Life expectancies for 2019 by Hispanic origin and race are not final estimates; see Technical Notes. Estimates are based on provisional data from January 2020 through June 2020. SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality data.

1. Overall burden

- 2. Inequities in burden
- 3. Social fracturing

Life expectancy at birth, by race



https://www.nytimes.com/interactive/2021/03/11/opinion/covid-inequality-race-gender.html?action=click&module=Opinion&pgtype=Homepagerset.extraction=click&module=Click&modul

Overall rates of COVID-19 mortality for Black and white Americans



Figure 4. Change in life expectancy at birth, by Hispanic origin and race and sex: United States, 2019 and 2020



NOTES: Life expectancies for 2019 by Hispanic origin and race are not final estimates; see Technical Notes. Estimates are based on provisional data from January 2020 through June 2020.

SOURCE: National Center for Health Statistics, National Vital Statistics System, Mortality data.



HS/GED indicates high school or General Educational Development certification. Error bars indicate 95% Cls.

- 1. Overall burden
- 2. Inequities in burden
- 3. Social fracturing













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MONDAY, JUNE 1, 2020

TWIN CRISES AND SURGING ANGER CONVULSE U.S.

Pandemic Leaves Nation's Nerves on the Edge

By JACK HEALY and DIONNE SEARCEY

They are parallel plagues ravaging America: The coronavirus. And police killings of black men and women.

Jimmy Mills's life has been upended by both. His barbershop in Midtown Minneapolis was one of many small, black-owned businesses that have struggled to survive the pandemic. But Mr. Mills was hopeful because, after two months shut down, he was due to reopen next week.

Then early on Friday, the working-class neighborhood where Mr. Mills has cut hair for 12 years went up in flames as chaotic protests over the death of George Floyd and police killings of African-Americans engulfed Minneapolis and cities across the country.

"To have corona, and then this — it's like a gut shot," Mr. Mills, 56, said.

The upheaval set off by a video capturing Mr. Floyd's agonizing last minutes as a white police officer kneels on his neck is pulsing through an America already ragged with anger and anxiety. Emotions are raw over the toll of a pandemic that has killed more than 100,000 people across the country and cost millions of jobs.

Minneapolis residents said outrage and protests in the aftermath of the killing of George Floyd were



Videos From Protests Deepen Scrutiny of Aggressive Police Tactics

By SHAILA DEWAN and MIKE BAKER

Demonstrations continued across the United States on Sunday as the nation braced for another grueling night of unrest over police shootings and the death of George Floyd, amid growing concern that aggressive law enforcement tactics intended to impose order were instead inflaming tensions.

Videos showed police officers in recent nights using batons, tear gas and rubber bullets on protesters, bystanders and journalists, often without warning or seemingly unprovoked. The footage, which has been shared widely online, highlighted the very complaints over police behavior that have drawn protests in at least 75 cities across the United States.

In Salt Lake City, officers in riot gear trying to clear onlookers shoved a man with a cane to the ground.

In Brooklyn, two police S.U.V.s plowed into protesters.

And in Minneapolis, where there have been six consecutive nights of protests and clashes, a video appeared to show officers yelling at people on their stoops to get inside and firing paint canisters at them. "Light them up," one officer said.

As crowds began gathering again in cities on Sunday, President Trump resisted calls to address the tensions roiling the country. Instead he used Twitter to criticize local Democratic lead-

the protests. Mayors and police chiefs spent the day explaining, defending and promising full investigations into the actions of officers seen on the disturbing videos.

"I didn't like what I saw one bit. I did not want to ever see something like that," said Mayor Bill de Blasio of New York, who also complimented the city's police officers for generally showing a "tremendous amount of restraint."

Military vehicles in recent nights have moved down city streets as phalanxes of officers in full riot gear fired clouds of noxious gas. Yet the show of force showed little sign that it would bring calm.

Instead, some people said, it was escalating tensions, and breaking the cycle would now be more difficult.

Mass demonstrations are among the most difficult situations that the police have to manage. They must balance constitutional liberties with the safety of officers and the public. Crowds are unpredictable and, in recent days, sometimes hostile. Too much force can escalate the situation — but so can too little.

Not all protests have erupted in violence, with some police forces showing a more positive relationship with their communities. In Petersburg, Va., Chief Kenneth Miller and a handful of police officers appeared alongside protesters to show solidarity. In



CM health Life, But Better Fitness Food Sleep Mindfulness Relationships

Why the world is still arguing over face masks, 20 months into the pandemic

 $Q \otimes \Xi$

• LIVE TV CN +

By Rob Picheta, CNN

Updated 7:10 AM ET, Tue November 2, 2021

3. What caused these shortcomings during Covid-19?

- 1. Technical shortfalls
- 2. Antecedent inequities
- 3. Communication challenges

1. Technical shortfalls

- 2. Antecedent inequities
- 3. Communication challenges



U.S. vaccinations lag behind other large, high-income countries

Despite beginning Covid-19 vaccinations months earlier than countries like Japan and Australia, a smaller share of people in the United States are now fully vaccinated.



Sources: Our World in Data (world vaccinations); Centers for Disease Control and Prevention (U.S. vaccinations) • Note: Vaccination and booster data in some countries are available infrequently. Sweden data for booster doses is available only from Jan. 20, 2022.

United States vaccinations



*The C.D.C. reported on Nov. 30, 2021 that booster doses are sometimes misclassified as first doses, which may overestimate first dose coverage among adults.

Sources: Centers for Disease Control and Prevention, U.S. Census Bureau | Note: Figures include the U.S. territories and three countries with <u>special agreements</u>.



Sources: <u>Centers for Disease Control and Prevention</u>; <u>Massachusetts</u> <u>Department of Public Health</u>; U.S. Census Bureau | Note: No C.D.C. data available for some counties. Vermont was excluded because more than a quarter of data is missing. On Dec. 9, 2021, the C.D.C. capped its vaccination rate figures at 95 percent.



Sources: <u>Centers for Disease Control and Prevention</u>; <u>Massachusetts</u> <u>Department of Public Health</u>; U.S. Census Bureau | Note: No C.D.C. data available for some counties. Vermont was excluded because more than a quarter of data is missing. On Dec. 9, 2021, the C.D.C. capped its vaccination rate figures at 95 percent.


Vaccination rates by county social vulnerability

Percentage of fully-vaccinated residents. Circles sized by county population.

Sources: Centers for Disease Control and Prevention; Massachusetts Department of Public Health; U.S. Census Bureau | Note: No C.D.C. data available for some counties. Vermont was excluded because more than a quarter of data is missing.

1. Technical shortfalls

- 2. Antecedent inequities
- 3. Communication challenges

There is a 20-year gap between counties with the lowest and highest life expectancies



Belluz J, Frostenson S. These maps show how Americans are dying younger. It's not just the opioid epidemic. *Vox*. May 9, 2017. https://www.vox.com/2016/12/13/13926618/mortality-trends-america-causes-death-by-county Accessed May 14, 2017.



https://www.nytimes.com/interactive/2020/06/19/opinion/politics/opportunity-gaps-race-inequality.html?action=click&module=Opinion&pgtype=Homepage





Abdalla SM, Galea S. Trends in cardiovascular disease prevalence by income level in the United States. JAMA Network Open. 2020;3(9):e2018150. https://doi:10.1001/jamanetworkopen.2020.18150 Share of population staying at home, by income group



Ability to work remotely



Black workers are more likely than other workers to be in front-line jobs

Black workers as a share of all workers in a given industry



Chart Data

Notes: The front-line industry categories used here are the categories used in the CEPR report (see Source below for more information). Sample is a 2014–2018 five-year estimate.

Source: EPI analysis of data from the Center for Economic Policy Research (CEPR) report *A Basic Demographic Profile of Workers in Frontline Industries* (April 2020).

Economic Policy Institute



Figure 16. Medical vulnerability to COVID-19 or the effects of social isolation, by income

Ever diagnosed with illness that makes them vulnerable to Covid

Longstanding mental health condition

Note: Diagnoses include asthma, congestive heart failure, coronary heart disease, emphysema, chronic bronchitis, cancer or malignancy, diabetes and high blood pressure. Mental health based on self-reported mental health condition lasting or expected to last over 12 months. Deciles based on equivalised net household incomes, using modified OECD equivalence scale.

Source: Authors' calculations using UK Household Longitudinal Survey wave 9 (ever diagnosed) and Family Resources Survey 2018–19 (mental health).

https://www.ifs.org.uk/publications/14879

High blood pressure







- 1. Technical shortfalls
- 2. Antecedent inequities
- 3. Communication challenges



Democrats and Republicans More Ideologically Divided than in the Past

Distribution of Democrats and Republicans on a 10-item scale of political values



Source: 2014 Political Polarization in the American Public

Notes: Ideological consistency based on a scale of 10 political values questions (see Appendix A). The blue area in this chart represents the ideological distribution of Democrats; the red area of Republicans. The overlap of these two distributions is shaded purple. Republicans include Republican-leaning independents; Democrats include Democratic-leaning independents (see Appendix B).

PEW RESEARCH CENTER

https://www.pewresearch.org/politics/2014/06/12/section-1-growing-ideological-consistency/



https://chicagocrusader.com/chicago/rising-omicron-cases-cdc-guidance-threatens-businesses/

You do not need a mask to avoid coronavirus.

Vex

Masks are only useful if you already have a respiratory infection and want to avoid spreading it to others.

Source: CDC

4. What are the roots of these problems?

- 1. (Under)investment in systems
- 2. (Under)investment in health
- 3. Politics and the science

1. (Under)investment in systems

- 2. (Under)investment in health
- 3. Politics and the science

State and local public health workforces have shrunk



State figures are for full-time equivalent employees in state public health agencies excluding Kansas, New Jersey, Texas and Wyoming, which do not have comparable data. Local figures are for full-time equivalent employees of local health departments. Source: Association of State and Territorial Health Officials, National Association of County and City Health Officials / Graphic: Hannah Recht/KHN, Francois Duckett/AP

Most state public health agency staffing and spending dropped



Most states spend less than \$100 per person on public health

Annual public health expenditures per resident by state-level agencies.



Expenditures are inflation-adjusted to constant 2019 dollars and reflect a 2016-18 average. Data includes transfers to local health departments. Sources: State Health Expenditure Dataset, U.S. Census Bureau

Map data: Tilegrams/NPR / Graphic: Hannah Recht/KHN, Francois Duckett/AP



Federal Prevention and Public Health Fund faces shortfalls



Source: Trust for America's Health / Graphic: Hannah Recht/KHN, Francois Duckett/AP

KHN AP

https://khn.org/news/us-public-health-system-underfunded-under-threat-faces-more-cuts-amid-covid-pandemic/

Most local health departments don't have epidemiologists

Percent of departments that have any epidemiologists or statisticians, by population served.

All departments	28%
<25,000	9%
25,000-49,999	14%
50,000-99,999	26%
100,000-249,999	55%
250,000-499,999	85%
500,000-999,999	94%
1,000,000+	100%
Enidemiologists track	and investigate patterns and analyze data on health issues.

-

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Source: National Association of County and City Health Officials / Graphic: Hannah Recht/KHN, Francois Duckett/AP

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KHN	AP

https://khn.org/news/us-public-health-system-underfunded-under-threat-faces-more-cuts-amid-covid-pandemic/

- -

State and local governments spend less than 3% on public health

State and local government spending, as a share of total expenditures.



Not all categories are shown. Nonhospital health includes public health, behavioral health, medical transportation and other nonhospital health-Source: U.S. Census Bureau "Annual Survey of State and Local Government Finances," 2017 /

AP

related spending. Nonhospital health does not include Medicaid spending. Graphic: Hannah Recht/KHN, Francois Duckett/AP



SCIENCE / CORONAVIRUS

The Government Asked Us Not To Release Records From The CDC's First Failed COVID Test. Here They Are.

Federal investigation records obtained by BuzzFeed News show how one of the most pivotal mistakes of the pandemic fell on an overburdened CDC lab with only three full-time employees.



Dan Vergano BuzzFeed News Reporter

Posted on December 8, 2021, at 3:16 p.m. ET

Most local governments spend more on policing than health

Higher spending on policing Higher spending on nonhospital health



Spending for all local governments within each county. Nonhospital health includes public health, behavioral health, medical transportation and other nonhospital health-related spending. It does not include Medicaid spending. Gray counties had no data available. Source: State Health Expenditure Dataset project analysis of "Annual Survey of State and Local Government Finances" 2017 data / Graphic: Hannah Recht/KHN, Francois Duckett/AP



1. (Under)investment in systems

- 2. (Under)investment in health
- 3. Politics and the science

Health Care Spending as a Percent of GDP, 1980–2018

Percent (%) of GDP, adjusted for differences in cost of living



Notes: Current expenditures on health. Based on System of Health Accounts methodology, with some differences between country methodologies. GDP = gross domestic product. OECD average reflects the average of 36 OECD member countries, including ones not shown here. * 2018 data are provisional or estimated.

Data: OECD Health Statistics 2019.





Figure 3 | Historical and projected federal spending: health care and other programs. SOURCE: Data from Congressional Budget Office.

B3: Percentage Spending Growth FY2001-2015



All data adjusted by CPI to 2015 dollars

Data from the Massachusetts Budget and Policy Center, State Budget Browser







McClure E, Feinstein L, Cordoba E, Douglas C, Emch M, Robinson W, Galea S, Aiello AE. The legacy of redlining in the effect of foreclosures on Detroit residents' self-rated health. Health and Place. 2019;55:9-19. PMID: 30448354. <u>https://doi.org/10.1016/j.healthplace.2018.10.004</u>



In Detroit, amongst the most segregated cities in America, 8 Mile Road serves as a sharp racial dividing line. *Image: Dustin Cable*



Fig. 3. Redlined areas in city of Detroit planning and development department historic neighborhood

Fig. 4. A. Change in Neighborhood Foreclosure Rate 2009-2011; Fig. 4B. Change in Prevalence of Poor Self-rated Health 2008-2012.

McClure E, Feinstein L, Cordoba E, Douglas C, Emch M, Robinson W, Galea S, Aiello AE. The legacy of redlining in the effect of foreclosures on Detroit residents' self-rated health. Health and Place. 2019;55:9-19. PMID: 30448354. https://doi.org/10.1016/j.healthplace.2018.10.004

Risk Factors for Severe Covid-19

The population of these 10 high-income countries differ in many demographic factors that are associated with an increased likelihood of severe Covid-19 illness or death.

Share of population not fully vaccinated

		36%		U	nited States
	29	%			Netherlands
	28%			Britain	
	27%				Sweden
	26%				Germany
	23%	23%			France
23%					Belgium
	21%				Japan
	20%				Australia
	20%				Canada
0%	20%	40%	60%	80%	100%

Share of adult population with obesity

		36%			United States
		29%			Canada
		29%			Australia
		28%			Britain
	22%				Germany
	22%				Belgium
	22%				France
	21%				Sweden
	20%				Netherlands
4%					Japan
0%	20%	40%	60%	80%	100%

Sources: C.D.C (risk factors and U.S. vaccinations); World Health Organization via Our World in Data (obesity data); United Nations (age distribution data); Our World in Data (world vaccinations) • Note: Age distribution data is the estimated population for 2020; data is as of 2019. Obesity data is the age-standardized estimate of obesity prevalence among adults; data is as of 2016.

- 1. (Under)investment in systems
- 2. (Under)investment in health
- 3. Politics and the science


Bor J. Diverging life expectancies and voting patterns in the 2016 US Presidential election. Am J Public Health. 2017;107:1560– 1562. doi:10.2105/AJPH.2017.303945

Share who said the following factors improved for them in 2020 minus the share who said those factors have worsened:



Poll conducted Dec. 17-20, 2020, among 2,200 U.S. adults, with a margin of error of +/-2%.

Los Angeles Times

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CALIFORNIA

Schools in more affluent areas move faster to reopen than those in low-income communities



First-grader Braylen Coleman has her temperature checked by teacher's aide Firoozeh Borjian as she arrives at Alta Vista Elementary School in Redondo Beach. (Al Seib / Los Angeles Times)

CORONAVIRUS, VACCINES AND PANDEMIC >

As underserved areas grapple with vaccine inequities, Sean Penn's nonprofit joins effort to get doses to residents

LAUSD coronavirus testing reveals 177 infections prior to first campus openings

COVID-19 vaccine supply rebounds as L.A. County hopes to rapidly immunize more residents

Tracking reopenings

Latest on vaccines and pandemic

Video

Great Barrington Declaration

As infectious disease epidemiologists and public health scientists we have grave concerns about the damaging physical and mental health impacts of the prevailing COVID-19 policies, and recommend an approach we call Focused Protection.



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DEUTSCH	<u>SVENSKA</u>	русский	עברית
POLSKI	DANSK	ΕΛΛΗΝΙΚΆ	MAGYAR
اللغة الغربية	<u>ČEŠTINA</u>	HRVATSKI	ROMÂNĂ
<u>简体字</u>	TÜRKÇE	NEDERLANDS	ÍSLENSKA
український	CATALÀ	한국어	BAHASA INDONESIA
српски	<u>БЪЛГАРСКИ</u>	SUOMI	FØROYSKT



[BLOG] UNION OF CONCERNED SCIENTISTS



Herding People to Slaughter: The Dangerous Fringe Theory behind the Great Barrington Declaration and Push toward Herd Immunity

DERRICK Z. JACKSON, FELLOW | OCTOBER 23, 2020, 5:19 PM EDT

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Officials at the highest levels are discussing the possibility of caving in on controlling the coronavirus and instead letting it run rampant



SEARCH



Zero-covid countries have done best and it's not too late to switch

f 💙 🕓 in 😚 🖂 🖶

HEALTH 14 June 2021

By Graham Lawton



Access provided by Boston University

COMMENT | VOLUME 397, ISSUE 10272, P359, JANUARY 30, 2021

Offline: The case for No-COVID

Richard Horton 🖂

Published: January 30, 2021 • DOI: https://doi.org/10.1016/S0140-6736(21)00186-0 • 🦲 Check for updates

Article Info Figures As many countries continue to struggle with a third wave of COVID-19—Hong Kong is suffering its fourth wave and is contemplating a fifth and sixth—all governments and public health authorities will need to remain open to new ideas for controlling the pandemic. This past week, Ilona Kickbusch, founding director of the Global Health Centre at the Graduate Institute of International and Development Studies in Geneva, shared a proposal being widely discussed in Germany. The approach devised by a group of clinicians and academics, which in addition to Kickbusch includes Melanie Brinkmann, Michael Hallek, Matthias Schneider, and others, is a "No-COVID strategy". $\frac{\text{The Economist}}{\text{Economist}} \equiv Menu \quad Weekly edition$

Redefining zero

China Mar 12th 2022 edition >

PDF [422 KB]

China's scientists are looking for a way out of the zero-covid policy

Q Search ∽

Politicians will have the ultimate say. Omicron may force them to act



5. How should this shape our approach to health?

- Investment in systems
- 2. Investment in health
- 3. Politics and science

- 1. Technical shortfalls
- 2. Antecedent inequities
- 3. Communication challenges

- 1. Overall burden
- 2. Inequities in burden
- 3. Social fracturing

- 1. A focus on health
- 2. A better value-informed science
- 3. The health conversation

1. A focus on health

- 2. A better value-informed science
- 3. The health conversation





Transform how we think about health

Learn from Covid-19 to inform other conditions

American exceptionalism

Difference between average American life expectancy, and OECD average life expectancy, 1960–2015



WADO STAMONKBIOG

Source: OECD, U.S. Census Bureau

Ingraham C. Americans are dying younger than people in other rich nations. Washington Post. December 27, 2017.

https://www.washingtonpost.com/news/wonk/wp/2017/12/27/americans-are-dying-younger-than-people-in-other-rich-nations/?utm_term=.d8ef8a27023a Accessed December 27, 2017.





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s Best States

Healthiest Communities

Cities

-

America 2020 The Racial Divide Photos

COMMENTARY

We Need a Health New Deal

There are three priorities we need to focus on to improve public health in the U.S.

By Sandro Galea Contributor March 1, 2019, at 10:11 a.m.

JAMA Health Forum.

JAMA Forum Reckoning With COVID-19 Exceptionalism

Sandro Galea, MD, DrPH

The COVID-19 pandemic is an ongoing tragedy, resulting in more than 5 million deaths worldwide since it emerged—becoming the third leading cause of death in the US in 2020—and bringing about immense economic and social disruption. Commensurate with this tragedy has been an extraordinary focus on the disease in the media and in scientific work. By May 2020, 10 000 articles about COVID-19 were published and indexed in PubMed, with an average of nearly 100 articles added every day.¹ Well over 100 000 articles were published about COVID-19 in 2020, or about 6% of all articles indexed in PubMed. In a short time, COVID-19 has become a "first among equals" among diseases; some journals saw a doubling in the number of submissions received, driven by COVID-19-related papers.

Author affiliations and article information are listed at the end of this article.

Pandemic Effect Estimated weekly deaths this year, by cause



Alzheimer's and dementia



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Note: Includes weighted data to account for potential underreporting due to lag-time in collecting death certificates. Excludes deaths where Covid-19 was the underlying cause. Source: Centers for Disease Control and Prevention

During the COVID-19 pandemic, prevalence of depression symptoms in the U.S. has risen across the board

Share of Americans reporting depression symptoms

Before the pandemic hit 📕 After the pandemic hit

Mild	16.2% 24.6%
Moderate	5.7% 14.8%
Moderately severe	2.1% 7.9%
Severe	0.7% 5.1%

Chart: Elijah Wolfson for TIME • Source: JAMA • Get the data • Created with Datawrapper



https://www.nytimes.com/interactive/2021/07/14/upshot/drug-overdose-deaths.html

These six trends are likely to shape post-COVID-19 healthcare.



McKinsey & Company



https://proactive-md.com/3-things-you-didnt-know-about-primary-care/

1. A focus on health

2. A better value-informed science

3. The health conversation





Epistemic humility Radical compassion

Reform through reason

66

With a lot at stake, it is wise to be humble when faced with fundamental limitations.

POLICY & ETHICS | OPINION

What Science Can and Cannot Do in a Time of Pandemic

It can inform policy, but it can't dictate how to weigh the moral and political nature of policy makers' decisions

By Nason Maani, Sandro Galea on February 2, 2021

The effects of communicating uncertainty on public trust in facts and numbers

Anne Marthe van der Bles^{a,b,c,1}[©], Sander van der Linden^{a,b,d,1}[©], Alexandra L. J. Freeman^{a,b}[©], and David J. Spiegelhalter^{a,b}[©]

^aWinton Centre for Risk and Evidence Communication, University of Cambridge, Cambridge CB3 0WA, United Kingdom; ^bDepartment of Pure Mathematics and Mathematical Statistics, University of Cambridge, Cambridge CB3 0WA, United Kingdom; ^bDepartment of Social Psychology, University of Groningen, 19712 TS Groningen, The Netherlands; and ^dCambridge Social Decision-Making Lab, Department of Psychology, University of Cambridge, Cambridge CB2 3RQ, United Kingdom

Edited by Arild Underdal, University of Oslo, Oslo, Norway, and approved February 20, 2020 (received for review August 7, 2019)

Uncertainty is inherent to our knowledge about the state of the world yet often not communicated alongside scientific facts and numbers. In the "postruth" era where facts are increasingly contested, a common assumption is that communicating uncertainty will reduce public trust. However, a lack of systematic research makes it difficult to evaluate such claims. We conducted five experiments—including one preregistered replication with a national sample and one field experiment on the *BBC News* website (total n = 5,780)—to examine whether communicating epistemic uncertainty about facts across different topics (e.g., global warming, immigration), formats (verbal vs. numeric), and magnitudes (high vs. low) influences public trust. Results show that whereas people do perceive greater uncertaints who this context is the communicated in a observation.

the general sense of honesty evoked [by uncertainty] ... this did not seem to offset concerns about the agency's competence" (p. 491). In fact, partly for these reasons, Fischhoff (1) notes that scientists may be reluctant to discuss the uncertainties of their work. This hesitation spans across domains: For example, journalists find it difficult to communicate scientific uncertainty and regularly choose to ignore it altogether (10, 11). Physicians are reluctant to communicate uncertainty about evidence to patients (12), fearing that the complexity of uncertainty may overwhelm and confuse patients (13, 14). Osman et al. (15) even go as far as to argue explicitly that "the drive to increase transparency on uncertainty of the scientific process specifically does more harm than good" (p. 131).

only a small decrease in source, and mostly fo results could help reas that they can be more human knowledge.

communication | uncertai

Our knowledge is i we gather inform acterized by assumptio alizations, which brings numbers, and scientific of the world around u and other producers of uncertainties around t nicated clearly to the lack of transparency of Knowing this should allow academics and science communicators to be more transparent about the limits of human knowledge.

Communicating uncertainty...only

exerted a minor effect on trust.

cisions people make based on scientific or statistical evidence, from personal medical decisions to government policies.

Recent societal developments do not seem to encourage more openness about uncertainty: It has been suggested that we are living in a "posttruth" era in which facts, evidence, and experts are deeply mistrusted (2). Cross-national survey studies suggest that in many countries, trust in institutions and governments is in decline (3-5). Although the underlying causes of changes in trust are likely to be complex and varied, it has been suggested that one way to potentially repair and restore public trust in science, evidence, and official statistics is to be more open and transparent about scientific uncertainty (2). However, it is often assumed that communicating uncertainty transparently will invite criticism, can signal incompetence, or even decrease public trust in science (1, 6-8). In fact, as summarized by the National Academies of Sciences, Engineering, and Medicine report on science communication, "as a rule, people dislike uncertainty [...] people may attribute uncertainty to poor science [... and] in some cases, communicating uncertainty can diminish perceived scientific authority" (ref. 7, pp. 27-28). For example, research by Johnson and Slovic (9) found that for some respondents, uncertainty "evoked doubt about agency trustworthiness" (p. 490), and that "despite

care uncertainty in news processive excession the texts included contested topics such as climate change and immigration statistics. While people's prior beliefs about topics influenced their trust in the facts, they did not influence how people responded to the uncertainty being communicated. Comminicating uncertainty numerically only exerted a minor effect on trust. Knowing this should allow academics and science communicators to be more transparent about the limits of human knowledge.

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The authors declare no competing interest.

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Data deposition: The datasets collected and analyzed in this paper are available on the Open Science Framework (https://doi.org/10.17605/OSF.IO/MT6S7).

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G.D.P. Figures Reveal Record Decline of American Economy

Tech

Unemployment Claims Exceed One Million for 19th Straight Week

- · America's economic output fell 9.5 percent in the second quarter, the biggest drop on record. That translates to a 32.9 percent annual rate of decline.
- · U.S. workers filed 1.43 million unemployment claims last week, about the same as the week before, showing no respite.
- · Stocks slid after reports showed the outbreak's toll on growth. Here's the latest.

Live

Democrats and Republicans have little overlap in their plans for more



Health

Opinion

Travel

John Lewis

Together, You Can Redeem the Soul of Our Nation

Magazine

T Magazine

S&P 500

Nasdag

Dow

Though I may not be here with you, I urge you to answer the highest calling of your heart and stand up for what you truly believe.



Linsey C. Marr

Yes, the Coronavirus Is in the Air

Transmission through aerosols matters - and probably a lot more than we've been able to prove yet.

Stuart Stevens

I Hope This Is Not Another Lie About the **Republican Party**

Nicholas Kristof

Help Me Find Trump's 'Anarchists' in Portland

Stower C. Colohussi

Change in employment, by income group



Note: Compared with January 2020

https://www.washingtonpost.com/graphics/2020/business/coronavirus-recession-equality/



Which Workers Are At Risk

Risk of Covid-19 infection by occupation relative to all occupations

6



*Elementary, middle school and junior high Source: Public Health Agency of Sweden



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Equity describes the just and fair allocation of resources according to need. It describes the absence of avoidable differences among different groups of people, whether we define them by their geographic location, rurality, economic status or social standing. In the context of health, it refers to the allocation of resources according to need, in a way that preventable differences in health outcomes are minimized, and access is fair. 99

Maani N, Abdalla SM, Ettman C, Parsey L, Rhule E, Allotey P, Galea S. Global health equity requires global equity. Under review. Culyer AJ, Wagstaff A. Equity and equality in health and health care. *Journal of Health Economics* 1993;12(4):431-57. doi: <u>https://doi.org/10.1016/0167-6296(93)90004-X</u>

JAMA Health Forum.

JAMA Forum

Elevating Dignity as a Goal for Health System Achievement in the COVID-19 Era and in the Future

Sandro Galea, MD, DrPH, MPH

Dignity lies at the heart of our shared humanity. The Latin root of the word dignity, dignitātem, suggesting "merit" and "worth," originally applied to persons of noble birth, or persons holding high rank. To this day, we sometimes equate dignity with social standing and bearing.

However, enlightenment-era thinking transformed our understanding of dignity to embrace the idea that all people hold special standing by virtue of our shared humanity. This principle was eventually embedded in the 1948 United Nations Universal Declaration of Human Rights, which opens with a preamble that says, "Whereas recognition of the inherent dignity and of the equal and inalienable rights of all members of the human family is the foundation of freedom, justice and peace in the world"—effectively centering dignity in the global human rights agenda, as part of "a common standard of achievement for all peoples and all nations." Author affiliations and article information are listed at the end of this article.

- 1. A focus on health
- 2. A better value-informed science
- 3. The health conversation


What primarily causes your health?





Figure 7.1 Shifting prominence and landmark achievements in public health and healthcare,

I Wasn't Strong Like This When I Started Out:



Edited By LEE GUTKIND





LETTERS FROM THEPIT

Stories of a Physician's Odyssey in Emergency Medicine



Carl Matlock, MD

THE ANNALS OF A

COUNTRY DOCTOR

TRAUMA

When Life Gives You Lemons

A Collection of Reader-Submitted Medical Stories







DISCOVER THE MIRACLES IN YOUR LIFE!

6. Building on past success



FIG. Adjusted and Unadjusted Mortality or Hospice Rate, by Month of Admission.

Developing mRNA-vaccine technologies

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CureVac GmbH; Tübingen, Germany

Keywords: mRNA, adjuvant, vaccine, mRNA production, mRNA design, mRNA uptake, formulation, protein expression

Abbreviations: ARCA, anti-reverse cap analog; cDNA, complementary DNA; CTL, cytotoxic T cell; dsRNA, double-stranded RNA; EMCV, encephalomyocarditis virus; GMP, good manufacturing practice; HPLC, high performance liquid chromatography; IRES, internal ribosome entry site; mRNA, messenger RNA; MHC, major histocompatibility complex; miRNA, microRNA; ORF, open reading frame; pAPC, professional antigen presenting cell; pDNA, plasmid DNA; PEG, polyethylenglycol; siRNA, small interfering RNA; tRNA, transfer RNA; TLR, toll-like receptor; UTR, untranslated region

subject to MHC haplotype restriction. In addition, mRNA is an intrinsically safe vector as it is a minimal and only transient carrier of information that does not interact with the genome. Because any protein can be expressed from mRNA without the need to adjust the production process, mRNA vaccines also offer maximum flexibility with respect to development. Taken together, mRNA presents a promising vector that may well become the basis of a game-changing vaccine technology platform. Here, we outline the current knowledge regarding different aspects that should be considered when developing an mRNA-based vaccine technology. is characterized by a great flexibility with respect to production and application. Any protein can be encoded and expressed by mRNA, in principle enabling the development of prophylactic and therapeutic vaccines fighting diseases as diverse as infections and cancer as well as protein replacement therapies. Since changes of the encoded protein just alter the sequence of the RNA molecule, leaving its physico-chemical characteristics largely unaffected, diverse products can be manufactured using the same established production process without any adjustment, saving time and reducing cost compared with other vaccine platforms. In terms of efficacy, mRNA-based therapeutics profit from the fact that they do not need to cross the nuclear envelope as

Life expectancy, 1543 to 2019

Our World in Data



Source: Riley (2005), Clio Infra (2015), and UN Population Division (2019) OurWorldInData.org/life-expectancy • CC BY Note: Shown is period life expectancy at birth, the average number of years a newborn would live if the pattern of mortality in the given year were to stay the same throughout its life.

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