



## FEATURE

## The positive effects of covid-19

As the coronavirus pandemic continues its deadly path, dramatic changes in how people live are reducing some instances of other medical problems. **Bryn Nelson** writes that the irony may hold valuable lessons for public health

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Doctors and researchers are noticing some curious and unexpectedly positive side effects of the abrupt shifts in human behaviour in response to the covid-19 pandemic. Skies are bluer, fewer cars are crashing, crime is falling, and some other infectious diseases are fading from hospital emergency departments.

Other changes are unquestionably troubling. American doctors have expressed alarm over a nosedive in patients presenting to emergency departments with heart attacks, strokes, and other conditions, leading to fears that patients are too afraid of contracting covid-19 to seek necessary medical care.<sup>1</sup> Calls to poison control centres are up by around 20%, attributed to a rise in accidents with cleaners and disinfectants even before President Trump questioned whether injected disinfectants might stop the virus.<sup>2</sup> Calls to suicide prevention lines are skyrocketing, while health experts are fretting about signs of rising alcohol and drug use, poorer diets, and a lack of exercise among those cooped-up at home.<sup>3</sup> Millions of people are hungry and unemployed.

But doctors, researchers, and public health officials say the pandemic is also providing a unique window through which to view some positive health effects from major changes in human behaviour. And the pandemic may lead to a public more willing to accept and act on public health messages.

Alice Pong, a paediatric infectious disease physician and the medical director for infection control at Rady Children's Hospital in San Diego, California, said the hospital has seen a sharp decline in paediatric admissions for respiratory illnesses. These include diseases such as influenza, parainfluenza, respiratory syncytial virus, and human metapneumovirus.

"We track positive viral tests through our hospital lab and those numbers have gone down dramatically since everybody went into quarantine," Pong told *The BMJ*. "We do think that's a reflection of kids not being in day care or school." The hospital is testing fewer patients, she said, which could be because more children might be staying home with respiratory symptoms. But more serious cases and intensive care unit admissions are down as well, suggesting a true decline in life threatening illnesses.

Beyond the disease reducing effects of social distancing, Pong said she believes children and families are taking advice on hand washing, personal hygiene, and other prevention measures seriously. "I think this is going to be a good lesson for everybody," she said. "The public is seeing why public health officials have advised them stay home when they feel sick, for example, and why they've emphasised hand washing and covering a cough or sneeze. Kids growing up now will know this is how germs are spread," Pong said. That message could spread to their families and broaden awareness.

### Fewer cars, blue skies

With covid-19 shutting down economic activity in most parts of the world and people staying closer to home, street crimes like assault and robbery are down significantly, though domestic violence has increased.<sup>4</sup> Traffic has plummeted as well. As a result, NASA satellites have documented significant reductions in air pollution—20-30% in many cases—in major cities around the world.<sup>5</sup> Based on those declines, Marshall Burke, an environmental economist at Stanford University, predicted in a blog post that two months' worth of improved air quality in China alone might save the lives of 4000 children under the age of 5 and 73 000 adults over the age of 70 (a more conservative calculation estimated about 50 000 saved lives).<sup>6</sup>

Although baseline pollution levels in the US are lower, Burke said a similar 20-30% reduction in pollution would still likely yield significant health benefits. "A pandemic is a terrible way to improve environmental health," he emphasised. It may, however, provide an unexpected vantage to help understand how environmental health can be altered. "It may help bring into focus the effect of business as usual on health outcomes that we care about," he told *The BMJ*. "In some sense, it helps us imagine the future." Getting there, he says, could instead come through better regulation and technology.

A separate report coauthored by Fraser Shilling, director of the Road Ecology Center at the University of California at Davis, found that highway accidents—including those involving an injury or fatality—fell by half after the state's shelter-in-place order on 19 March.<sup>7</sup> "The reduction in traffic accidents is

unparalleled,” and yielded an estimated \$40m (£32m; €37m) in public savings every day, the report asserted.

Whereas average traffic speeds increased by only a few miles per hour, traffic volume fell by 55%. Hospitals in the Sacramento region reported fewer trauma related admissions while other reports indicated fewer car collisions with pedestrians and cyclists.

In Washington, collisions on state highways fell even further—by 62%—in the month after the state’s stay-at-home order went into effect on 23 March, compared with the previous year, according to the Washington State Patrol. The question, Shilling said, is whether researchers can learn from the information to design safer transportation patterns. “We’re not going to be guessing anymore about what happens when you take half the cars away,” he said.

Emptier highways, though, may be triggering reckless driving that could undo the mortality reductions. Washington State Patrol spokesperson Darren Wright said that troopers are seeing a “scary trend” of more drivers travelling at extreme speeds—a phenomenon also observed in Missouri. “We’re seeing speeds in the 120 and 130 miles per hour range,” Wright said. One motorcyclist was clocked at more than 150 miles per hour.

## Reassessing priorities

If the pandemic has prompted risky behaviour for some, it has encouraged others to embrace preventive measures. Randy Mayer, chief of the Bureau of HIV, STD, and Hepatitis at the Iowa Department of Public Health, said the public has become more responsive to calls from the department’s partner services, which perform contact tracing for people who test positive for HIV, gonorrhoea, and syphilis. “People are really interested in calling us back and finding out what information we have for them,” he said. That increased cooperation, Mayer said, may be a benefit of people associating public health departments with trying to keep them safe from covid-19.

Even so, he worries that a noticeable reduction in the number of new HIV diagnoses may partially reflect a reduction in available testing with many clinics open for limited hours, if

not completely closed. But growing evidence suggests that more people are also heeding recent pleas by public health officials and even dating apps to reduce the risk of covid-19 infection by avoiding casual sex with new partners. Researchers in Portugal and the UK told *The BMJ* that they were beginning to see shifts in the incidence of sexually transmitted infections but were still collecting data to support their observations.

Miguel Duarte Botas Alpalhão, a dermatovenerologist and invited lecturer in the Faculty of Medicine at the University of Lisbon, said that he expects to see a lower rate of sexually transmitted infections during the lockdown. The crisis has caused people to question their priorities “and how much they are willing to give up to protect their lives and those of their loved ones,” he said. “People are now more aware that nothing really matters when health is lacking, and this raised awareness may be the driving force towards healthier habits. We will have to wait and see.”

Competing interests: I have read and understood BMJ policy on declaration of interests and have no relevant interests to declare.

- 1 Grady D. The pandemic’s hidden victims: sick or dying, but not from the virus. *New York Times*. 20 April 2020. [www.nytimes.com/2020/04/20/health/treatment-delays-coronavirus.html](http://www.nytimes.com/2020/04/20/health/treatment-delays-coronavirus.html).
- 2 Chang A, Schnall AH, Law R, et al. Cleaning and disinfectant chemical exposures and temporal associations with covid-19: National Poison Data System, United States, January 1 2020-March 31 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:496-8. [10.15585/mmwr.mm6916e1.32324720](https://doi.org/10.15585/mmwr.mm6916e1.32324720)
- 3 Bharath D. Suicide, help hotline calls soar in Southern California over coronavirus anxieties. *Orange County Register*. 19 April 2020. [www.ocregister.com/2020/04/19/suicide-help-hotline-calls-soar-in-southern-california-over-coronavirus-anxieties](http://www.ocregister.com/2020/04/19/suicide-help-hotline-calls-soar-in-southern-california-over-coronavirus-anxieties).
- 4 Dazio S, Briceno F, Tarm M. Crime drops around the world as covid-19 keeps people inside. *Associated Press*. 11 April 2020. <https://apnews.com/7bbb7adc88d3fa067c5c1b5c72a1a8aa6>.
- 5 NASA. Airborne nitrogen dioxide plummets over China. 2 March 2020. [www.earthobservatory.nasa.gov/images/146362/airborne-nitrogen-dioxide-plummets-over-china](http://www.earthobservatory.nasa.gov/images/146362/airborne-nitrogen-dioxide-plummets-over-china).
- 6 Burke M. Covid-19 reduces economic activity, which reduces pollution, which saves lives. *G-FEED.org*. 8 March 2020. [www.g-feed.com/2020/03/covid-19-reduces-economic-activity.html](http://www.g-feed.com/2020/03/covid-19-reduces-economic-activity.html).
- 7 Shilling F, Waetjen D. Special report (update): impact of covid-19 mitigation on numbers and costs of California traffic crashes. 15 April 2020. [https://roadecology.ucdavis.edu/files/content/projects/COVID\\_CHIPs\\_Impacts\\_updated\\_415.pdf](https://roadecology.ucdavis.edu/files/content/projects/COVID_CHIPs_Impacts_updated_415.pdf).

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