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How the US can beat the virus

What can incoming US president Joe Biden do to stop the surge of coronavirus cases across the country? Cassandra Willyard reports

Almost 300,000 people have died of covid-19 in the US, and 200,000 more are expected to succumb to the disease by April. Coronavirus cases are spiking across the nation and hospitals are at or near capacity in many communities.

US president-elect Joe Biden has outlined a science-based approach to combating coronavirus that is a striking contrast to the actions of his predecessor. President Donald Trump downplayed the severity of the virus and flouted public health recommendations such as wearing a face covering and avoiding large gatherings.

Biden has already assembled a covid-19 advisory board and named a new health secretary, surgeon-general and covid-19 czar. He has also asked Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases and current member of the White House Coronavirus Task Force, to stay on and become his chief medical adviser. That is a relief to Ali Mokdad at the University of Washington in Seattle. These are “smart people who know what they are doing”, he says.

Quelling the latest surge of covid-19 won’t be easy for Biden’s administration, however. “They’re going to walk into a raging epidemic, where there’s distrust,” says Georges Benjamin at the American Public Health Association in Washington DC. “There are still people that don’t believe the disease exists.”

New Scientist spoke with public health experts, epidemiologists, physicians and social scientists to see how Biden might turn the tide.

Win hearts and minds

Biden’s toughest challenge might be persuading the people who didn’t vote for him to adopt behaviours that curb the virus’s spread, such as wearing masks.

The most basic public health recommendations have become political flashpoints under the Trump administration. “It’s not just that they’re being silent on the guidelines, it’s that they’re actively advocating for citizens to violate public health guidelines,” says Jay Van Bavel at New York University. His research suggests partisanship is one of the biggest predictors of behaviour (Nature Human Behaviour, doi.org/fmw2).

“That, to me, is the hardest part of it to overcome,” he says.

Winning the war against covid-19 is going to happen one conversation at a time

One of the best tools to slow the spread of covid-19 has been promoted since fairly early in the pandemic: wearing a face covering. “It is really a pillar of pandemic control,” says Monica Gandhi at the University of California, San Francisco. Models developed by researchers at the University of Washington, which project 200,000 extra deaths by
The real driver of whether to come by and people often have in many places, tests are still harder than 1.5 million people a day. But and limit the spread of the virus. They are more likely to isolate if people know they are infected, testing is key to bringing the experts argue that expanded to more testing. Public health rising case numbers are only due Trump has falsely claimed that infringing their individual rights. Some Trump supporters see requirements to wear masks as infringing their individual rights.

Ramp up testing

Trump has falsely claimed that rising case numbers are only due to more testing. Public health experts argue that expanded testing is key to bringing the pandemic under control, because if people know they are infected, they are more likely to isolate and limit the spread of the virus. The US is currently testing more than 1.5 million people a day. But in many places, tests are still hard to come by and people often have to wait days to get their results.

Public health officials recommend that people with symptoms of covid-19, or who have had close contact with someone who has the virus, stay at home, but the longer the wait for results, the more difficult that becomes.

Biden has pledged to double the number of drive-through testing sites—the country currently has about 800. He has also promised to invest in rapid tests. The slower tests, which are the most widely available type in the US, detect even tiny quantities of viral RNA and must be processed in a lab. Most rapid tests detect pieces of viral protein and are less sensitive but offer near immediate results. Michael Mina at Harvard University has been a vocal advocate for rapid, at-home testing, which is rare in the US. The only covid-19 test approved for home use that gives fast results requires a prescription and costs about $50. If half the population screened for covid-19 every four days, the pandemic would fizzle out because most contagious individuals would stop spreading the virus unknowingly, Mina argued in *Time* on 17 November.

People queue in Los Angeles, California, for covid-19 tests

Mass testing would also allow for more tactical application of lockdowns and other restrictions, says Ana Bento at Indiana University. Critics have argued that rapid antigen tests aren’t sensitive enough to catch every case and come with a risk of false positives, but Gandhi says they could still have an enormous impact. “We’re making perfect the enemy of the good,” she says.

Support vaccine roll-out

The Pfizer/BioNTech covid-19 vaccine has been granted US emergency use approval, and Moderna has applied for this for its own vaccine. Vaccination of healthcare workers had just begun as this issue went to press (see page 7). Those shots seem to be “effective beyond our wildest dreams”, says Gandhi.

But efficacy is only part of the story. “The real driver of whether a vaccination programme really leads to large reductions in the number of cases is the speed at which it’s rolled out,” says Jason Schwartz at Yale University. How fast the virus is spreading also matters. “If you’ve got a virus just spreading like wildfire throughout a community, it makes it that much harder for a vaccine to help us turn the page,” he says.

It could take months before enough people are vaccinated to meaningfully affect transmission, says Mokdad. Both vaccines require two doses spaced three to four weeks apart, and some worry that people won’t return for their second dose.

Although states will be in charge of delivering the vaccine, the federal government has a crucial role. Schwartz says many local and state health departments don’t have the financial resources for a huge vaccination campaign. “It’s an incredible responsibility that is complicated and costly,” he says.

1 April 2020, predict that if 95 per cent of people in the US wore a face covering, it could save 66,000 lives by the same date.

Biden has said he will require masks in federal buildings but won’t issue a national mandate.

“The real driver of whether a vaccination programme lowers cases is the speed at which it’s rolled out”

on face coverings. Even if he did, it isn’t clear if a federal mandate could withstand a legal challenge. Instead he has pledged to persuade leaders in states that don’t require masks to enact mandates. And if the governors won’t listen? “Then I go to every mayor. I go to every councilman,” said Biden in a televised interview on 15 October. “And I go to every local official and say ‘mandate the mask’.”

Convincing some people in the US to comply will be a tough sell. The decision to wear a face covering has become linked to people’s political identities, says Monica Schoch-Spana at Johns Hopkins University in Maryland. Some Trump supporters see requirements to wear masks as infringing their individual rights.

**Support vaccine roll-out**

The pandemic response in the US has been hampered by persistent supply-chain issues. A November report by the US Government Accountability Office (GAO) revealed that as many as half of US states have shortages of rapid point-of-care tests, reagents and testing instruments. Shortages of personal protective equipment haven’t been as severe as they were in spring, but some states still have little confidence in their ability to procure nitrile gloves and boot covers. A third of states said in a survey that they were concerned about supplies needed to administer covid-19 vaccines, especially syringes.

Addressing those shortages may require greater use of the Defense Production Act of 1950, says Benjamin. The law gives the president authority to compel companies to produce supplies in an emergency. Trump employed the act to beef up production of medical masks and ventilators in March, but Biden has pledged to use it more aggressively.

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