

# Pollution and coronavirus – a deadly combination

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To: The President; The White House.

CC: The Hon. Rob Wittman (R-Va.-1<sup>st</sup>), U.S.  
House of Representatives

Mr. President:

The time has come to cast up accounts on the worldwide coronavirus “plague.” An eminent German physician has at last linked the second half of the problem. He explains why the virus has different morbidities and mortalities in different parts of the world. And his theory also explains what we must eliminate to solve the problem: *pollution*. Pollution – and specifically air pollution – is the key to the problem and the failure, thus far, to solve it.



## My credentials – as an engineer and a physician

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Before I begin, let me set forth my education, training and experience. I graduated from Yale University in 1980 with the degree of Bachelor of Science in engineering. Then I entered Baylor College of Medicine (Houston, Texas) where I earned the degree of Doctor of Medicine in 1985. I took seven years of postgraduate training in clinical pathology and medical informatics. Then I put in six years as a clinical pathologist and laboratory administrator in 250-bed community hospitals.

This education, training and experience has taught me how to:

1. Read critically a paper in the medical literature,
2. Examine epidemiological trends, and
3. Evaluate possible solutions from engineering.

Please bear these facts in mind in evaluating what I am about to discuss and propose.

## The epidemiology of COVID-19

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Everyone has taken note of the spread of the “novel coronavirus,” or simply “the virus.” It started in Wuhan, the chief city of Hubei Province. The virus took an especially heavy toll there, where the Chinese built special hospitals or converted existing buildings. (One such building, a hotel, collapsed from the unaccustomed weight of the hospital beds, equipment, etc. Or so an anonymous source informed me in a social-network comment.) Other regions that have suffered the worst from the virus include without limitation:

1. Northern Italy
2. Iran
3. Select areas of the United States, especially New York, New Jersey, and western Connecticut

Mr. President, I submit that the regions seeing the highest incidence, prevalence, morbidity and mortality have one thing in common. *They have some of the highest degrees of air pollution.*

## Helpful definitions

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Some definitions are in order, for the benefit of laypersons:

- *Incidence* = proportion of people contracting the virus in any given time span. Today we measure the incidence of COVID-19 in cases per hundred (or thousand or ten thousand) person-days.
- *Prevalence* = proportion of active cases in a population.
- *Morbidity* = proportion of *severe* or at least *symptomatic* cases in a population.
- *Mortality* = proportion of people *dying* of a disease in a population.
- *Case-fatality rate* = the proportion of active cases of a disease ending in death. To calculate it, divide deaths by active cases. The quotient mortality/prevalence should yield about the same answer.

## The first recommendations...

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Dr. Anthony S. Fauci, head of the National Institute of Allergy and Infectious Disease, seems to be your highest medical adviser on COVID-19. Obviously that would seem reasonable. One asks an infectious disease specialist to advise about an infection. Besides, as a medical trainee I respect his experience.

I recall that Dr. Fauci recommended to you that the entire country lock itself down for two weeks. Even that recommendation was more reasonable than the original recommendation of Neil Ferguson of the Imperial College Faculty of Science and Medicine. *He* recommended that the world lock itself down for *a year and a half*. Which is to say, however long a vaccine took to develop and deploy widely. ([Here](#) you will have access to every report from the Imperial College.)

## ...and more recent ones

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But two days ago Dr. Fauci published this editorial in *The New England Journal of Medicine*. Here he says:

If one assumes that the number of asymptomatic or minimally symptomatic cases is several times as high as the number of reported cases, the case fatality rate may be considerably less than 1%.

And goes on to suggest that we might be dealing with a disease no more serious than seasonal influenza.

Similarly, Dr. Ferguson now says COVID-19 will peak in two to three weeks. He also admits the overall case-fatality rate will be far less than he first assumed.

## Rapid transmission

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The problem, of course, is how easy it is to give to someone else. Dr. Fauci tells us ten infected persons can give the disease to twenty-two others. *Which means many people already have the virus and might never know it.* Never know it, because their healthy lungs will keep them alive long enough to recover from it. Indeed Dr. Fauci admitted as much in his *NEJM* editorial. The Wuhan experience included *no reports of cases in patients younger than fifteen years of age*. I suggest their young lungs are still healthy, so their symptoms were mild.

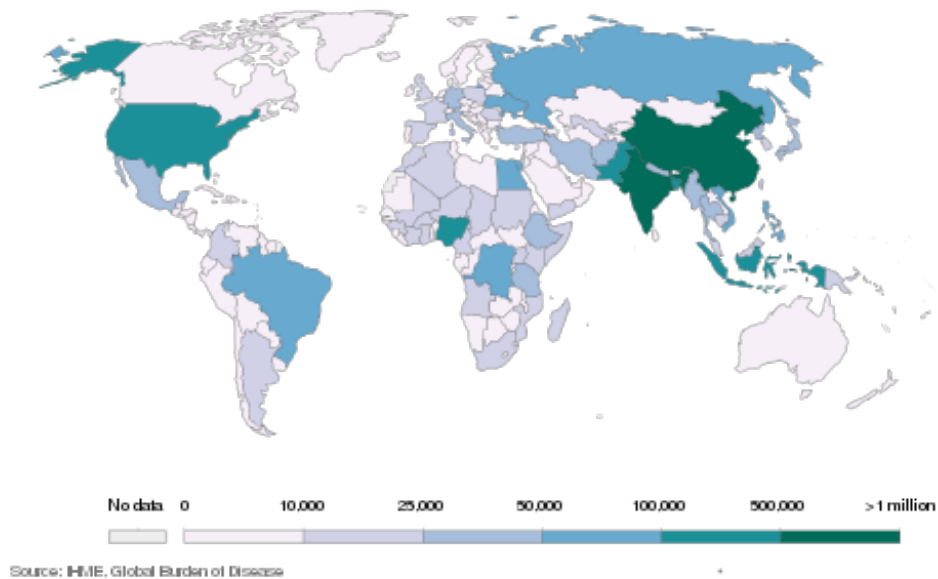
## Pollution – what makes a person vulnerable

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All this leads to the central question: *what makes a person so vulnerable that an infection will kill him?* What determines who survives and recovers, and who dies?

## Number of deaths from air pollution, 2017

Number of deaths from air pollution is the sum of attributed deaths to both indoor and outdoor air pollution.



This map shows the countries with the most deaths attributed to air pollution three years ago. Even this map understates the problem in relatively sparsely settled countries like Iran, Italy and Germany.

["File:Number of deaths from air pollution, 2, OWID.svg"](#) by Our World In Data is licensed under [CC BY 3.0](#)

For the answer, I offer this video by Tony Heller, most famous as a "climate skeptic."





Watch Video At: <https://youtu.be/0rInTBhGq10>

He includes here a map of Northern Italy from March of 2019. That map showed some of the highest levels of NO<sub>x</sub> pollution in the world. The case-fatality rate in Northern Italy is high—perhaps as high as six percent.

## The pollution experience in Hubei Province

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Hubei Province in China, and especially the city of Wuhan, had a similar problem. Tellingly, the level of NO<sub>x</sub> pollution over Hubei province almost *vanished* in February of this year. We observed this by satellite. It has now returned to *status quo ante* the virus. But this article suggests the Chinese might simply have turned on local HVAC systems, and power plants to “juice” them. Thus they have produced a “Potemkin pollution showing,” for lack of a better term. Furthermore, the sudden increased delivery of funereal urns to Wuhan begs explanation. The author of that last article speaks of reparations. I speak of something more serious: a second wave, not merely of infection, but of morbidity and mortality. Which I maintain is happening *now. Today. This instant.*

## Less pollution in Shanghai

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Note that Shanghai has much lower levels of NO<sub>x</sub> pollution. This could explain why Tesla’s “Giga Shanghai” factory can today produce *more* than before the virus. This will be critical to the solution I propose, and to Tesla’s competitive and financial strength.

## Another epidemiologist points to pollution

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But Mr. Heller *also* offers an interview with Dr. Sucharit Bhakdi, another infectious-disease specialist like Dr. Fauci. Indeed Drs. Bhakdi and Fauci have comparable professional reputations. (You should check with Dr. Fauci himself to be sure.) Dr. Bhakdi maintains that:

- Coronaviruses are fairly common and usually produce mild to moderate disease.
- COVID-19 is a novel strain; hence everyone starts out with first exposure.
- The disease is still mild, if noticeable at all, *unless* the patient *already* has significant heart and/or lung disease.
- Case-fatality rates vary by region.
- We still don't have a good denominator. A subclinical case *will never report or submit for testing*.
- Those who die *with* the virus do not necessarily die *of* it. This affects the *numerator* of case-fatality rate.

## Pollution is the key

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Dr. Bhakdi *specifically cited pollution* as the key to the high case-fatality rates in Northern Italy *and* in China's Hubei Province. True, Dr. Fauci is on record suggesting that Northern Italy saw a high proportion of Chinese tourists. But *that explanation is incomplete*. The tourists could transmit the disease and thus drive the *incidence* of the disease. But one cannot blame the *mortality* of the disease on its transmitter(s).

Dr. Bhakdi says:

The lungs of [the] inhabitants [of Northern Italy and China] have been chronically injured over decades. For this simple reason the situation may not be comparable to elsewhere.

*From the subtitle of the embedded video, translation from the German*

## How to get an accurate numerator and denominator

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And *also* for that reason, Dr. Bhakdi *decries* the extreme "mitigation" strategies—the lockdowns, the stay-at-home orders, the idling of factories, the school closings, etc. These, he says, do not address the real problem. Which is: pollution. Tellingly, the virus does *not* kill those with no other health issues.

For this reason I earlier recommended:

- Testing anyone who asks, and surveying for travel, work and social-contact history.
- Independent audit of the mortality and case-fatality statistics.
- Independent *review* of every *fatality* currently reported.

These would tell us the true case-fatality rate and determine whether these extreme measures are, or ever were, necessary. I repeat what I said earlier: this country is under a selective general strike. And like all general strikes, it will create hardship in and of itself. That hardship can only serve the interests of certain politicians and political theorists who, I maintain, are acting in bad faith.

## Two kinds of pollution that create the same basic problem

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But this still leaves us with the central problem: pollution. The two most common things that will make a person more likely to die of COVID-19 are:

- A history of smoking, first- or second-hand, and
- A lifetime of living in a neighborhood or locale where air pollution is and has been a persistent problem.

As Dr. Fauci has already written, COVID-19 spreads at least as fast as influenza. We will *never* contain it. And as you, Mr. President, have pointed out, we cannot shut ourselves down forever. That way lives starvation, privation—and perhaps the extinction of freedom. Your predecessor, Ronald W. Reagan, warned that outcome was always one generation away. The recent behavior of:

- Rep. Nancy Pelosi (D-Calif-8<sup>th</sup>), Speaker of the House of Representatives, and
- Rep. Alexandria Ocasio-Cortez (D-N.Y.-14<sup>th</sup>)

suggests the Party to which they belong, would extinguish freedom in a trice, given the opportunity.

## If we can't contain the virus, address pollution

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But we *can* address the second half of the death equation: pollution. Obviously my proposal assumes telling certain patients the obvious: *don't smoke, and stop smoking*. Indeed, removing an insult to the lungs lets the lungs heal. Don't take my word for this. Check with, in addition with Dr. Fauci, the head of the *National Heart, Lung and Blood Institute*.

I am about to recommend a thing few if any conservatives would recommend. We conservatives have a reputation—perhaps that we deserve—of favoring “big business” against any form of regulation. But the human population has a new virus that *will become endemic to it*. We will *not* contain it; we will *not* eradicate it. So we *must* address pollution. And with the technologies *now at hand, and easy to develop*, we can.

## Remove pollution at its sources!

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We must remove air pollution at all its sources. However we make this happen, by whatever laws, regulations, or injunctions by a court, this must happen. If we do not remove pollution, then COVID-19 will continue to kill. And it will kill disproportionately near our roads, power plants, and the sootiest factories. Worse yet, another virus will arise that will kill even more readily. Only those whose lungs have not suffered the insults of pollution will survive the pathogens to come. How humanity “got away with it” for so long, I wonder whether even Dr. Fauci can explain. We cannot get away with it anymore.

## The sources of air pollution include without limit:

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- Conventional automobiles, trucks, and buses.
- Diesel-electric railroad locomotives.
- Factories that directly burn the dirtiest fuels to make great heat
- Power plants that burn coal or oil. Power plants that burn methane emit carbon dioxide but *not* the nitrogen oxides, sulfur dioxide, or particulates in great quantity.
- Conventional aircraft.

The above list holds the worst offenders. The following sources emit somewhat less pollution than the above:

- Ocean-going ships, especially freighters and cruise ships.
- Refuse haulers, utility repair trucks, and other stop-and-go heavy-duty vehicles. “Hybrid” vehicles of these types, that emit far less pollution, are *in production*.
- Heavy equipment for construction, mining, and similar activities.

## A brief note

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With regard to cruise ships: I do not suggest that the fatalities aboard the Steamship *Diamond Princess*, for example, resulted from passengers breathing stack gas from the ship’s engines. I *do* suggest the dying passengers had abused their lungs for decades before even getting aboard that ship.

## How to remove the worst pollution sources

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### Pollution from ground transportation

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So how do we remove pollution at the source, and *which* sources do we address first? Obviously we address pollution near where people live and work. That includes *aircraft*, because their pollution affects those who live near *airports*. Removing all these sources of pollution means:



- Electrifying the entire light- and medium-duty automotive fleet. That includes the bus fleet—and electric and hydrogen buses are already in development.
- Electrifying all rail transport. This does not necessarily require stringing catenary over all railroad lines that now lack it. It might mean developing a locomotive with a large battery pack instead of an on-board Diesel engine. Such a locomotive could recharge on a line with a catenary and still pull trains beyond it.

## Stationary sources of pollution

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- Replacing all peak-load power plants with some form of grid-scale storage. Power authorities in South Australia and Hawaii are already using battery storage. Various forms of gravity storage also exist.
- Encouraging—or enjoining—factories to switch to electric or methane-burning furnaces.

## Pollution from commercial aviation

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Developing and deploying a new generation of airliners. This might include hydrogen-burning airliners for “great semicircle” and other long routes, and aircraft using multiple electric propellers and fans to handle short and medium-length routes. Both kinds of aircraft are already under development.

## The grid-scale storage solution to peak-load pollution

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Some of these things we can do at once. The grid-storage solution, for example, can make use of either:

- Nuclear power plants running at a higher than current base load, and/or:
- Solar and wind power, either at grid scale or for residences, apartment developments, office parks, farms, and factories. Grid-scale wind power *will* require *some* system to stop the bird kills we now see with large turbines.

## Removing pollution essential to the national health

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Mr. President, I suggest a rationale exists to declare that anyone building electric vehicles, *qualifies as an industrial operator essential to the overall health of the nation*. Electrifying the vehicle fleet will clear the air above and well to either side of our streets, roads and highways. We need these products, in quantity, *now*, to remove pollution at the source:

- Light- and medium-duty electric vehicles of nearly all types. They include “semi” trucks that replace the most notorious air and noise polluters on the road today.

- Batteries of all sizes. We already see batteries that store power at grid scale and in single-family homes. We will need batteries to store power in apartment and office buildings also.
- Photovoltaic collectors, either as panels to mount on roofs or as solar “shingles” or high-end tiles. *More than one company offers the latter for sale.*

## An ambitious and radical program

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An ambitious program? Certainly. But one that will need minimal taxpayer investment and merely an adjustment of air-quality standards.

This will require a change in your original outlook. But have you not ordered certain changes you never would think of ordering before? A change to remove air pollution at all its sources will represent a permanent change that will benefit everyone.

## About the image

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The featured image shows a visible ground-level haze on the streets of Tehran, Iran. Air pollution produces that haze. Because the residents are breathing this air, one can readily see why Iranians are dying from COVID-19.

“[File:Heavy Air pollution in Tehran 3.jpg](#)” by Hamid Vakili is licensed under [CC BY 4.0](#)

