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Clear up the air

To contain the coronavirus pandemic, billions of people have been told to stay at home. In China, authorities placed almost half a billion people under lockdown, the equivalent of nearly 7 percent of the world's population. Many other countries have since taken similar measures, initially in hard-hit Italy and Spain, and more recently in the United States and India.The restrictions have sent financial markets into freefall. But they have also given residents in some of the world's most polluted cities something they have not experienced in years: clean air.These visualizations, based on data from NASA's Global Modeling and Data Assimilation team, show how concentrations of some pollutants fell drastically after the lockdowns started.Satellite observations record information on aerosols in the atmosphere. NASA's model is then able to provide estimates of the distribution of these pollutants close to the Earth's surface.ChinaThe maps below show how levels of PM2.5 nitrate fell in China's Hubei province after the government imposed travel restrictions. Nitrate is one of the components that make up PM2.5, tiny particles, about 3 percent of the diameter of human hair, that can penetrate deep into the lungs and enter the bloodstream, leading to heart disease, strokes or cancer.Nitrate aerosols are formed from nitrogen compounds, which can be emitted by human activities, especially burning fuel and diesel."We may soon learn how much of an impact this temporary pause in pollution has had on human health and the environment, but the clearest takeaway from this event is how satellite measurements of nitrogen compounds can be used as an indicator of economic activity," says Ryan Stauffer, a research scientist at NASA's Goddard Space Flight Center.Ground station metrics from Wuhan, where the pandemic originated, show how certain pollutants including nitrogen dioxide were at record lows during the first few months of the year.Some of the major sources of nitrogen dioxide are vehicle exhausts, power plants and wastewater treatment plants.Scientists say nitrogen dioxide pollution has been steadily decreasing over the last few years. However, the lockdown may have contributed to this year's drop.The following charts show monthly averages of pollutants over the last seven years."Most important to health would be reductions in PM2.5, as that is the single pollutant most associated with severe adverse health effects, such as heart attacks and death," George D. Thurston from the New York University School of Medicine, told Reuters.Beyond China, many other countries have experienced big drops in PM2.5 and other pollutants in recent months.South Koreain early March, South Korea reported a large increase in COVID-19 cases. Since then, ground stations have been measuring the lowest levels of some pollutants for seven years. Although South Korea did not impose major restrictions on residents, changes in daily activity could have contributed to the drop.ItalySimilar patterns unfolded across Italy following the introduction of a nationwide lockdown on March 9. Restrictions had already been implemented in late February in some northern regions, where COVID-19 cases had surged.The industrial belt across northern Italy often experiences high levels of air pollution, but estimates show otherwise this year.Of the pollutants that fell most significantly in northern Italy, nitrogen dioxide stood out, according to data recorded at ground stations. Bergamo, one of the provinces most affected by the virus, has experienced improvements in air quality.IndiaEvery winter, New Delhi and other big cities in the north are enveloped in a blanket of smog as farmers burn crop residue. The air tends to clear a little in spring.However, in the first few months of this year, India experienced a significant decline in some pollutants. The lockdown imposed by Prime Minister Narendra Modi on the country's 1.3 billion people could be a major contributing factor. However, there may also be other factors impacting air quality, according to Pallavi Pant, an air quality scientist at the Health Effects Institute in Boston."Air pollution levels are often influenced by local meteorology, like temperature or wind speed. Several early analyses are showing declines in air pollution in regions where shutdowns have taken place. However, any such analyses should consider all relevant factors," Pant says.Ground stations in northern India also show a downward trend in overall PM2.5, according to data from local authorities.Beyond improvements in outdoor air quality, scientists are also curious how lockdowns have affected indoor air quality, with millions of people staying at home for far longer than usual."As we continue to talk about improvements in outdoor air quality, people are spending a lot more time indoors and the exposure patterns for indoor air pollution might be different at this time too," says Pant.Sources: Global Modeling and Assimilation Office (GMAO), NASA. China National Environmental Monitoring Centre. Wuhan Environmental Protection Bureau, Hubei Environmental Protection Agency. U.S. Embassy and Consulates' Air Quality Monitor in India. India Central Pollution Control Board (CPCB). Delhi Pollution Control Committee. South Air Korea Environment Corporation, Seoul Clean Air Pollution Information. World Air Quality Index Project. Regional Agency for Environmental Protection (ARPA) Lombardy.This story originally appeared in Reuters and is republished here as part of Covering Climate Now, a global journalism collaboration strengthening coverage of the climate story. Video Playback Not Supported Allen Lyle with an HE series ventilation system from Broan.Insulation and ventilation go hand in hand. While it's important that your home is tightly sealed, it's equally important that your home is well ventilated, allowing fresh air into the house and exhausting contaminated air to the outside.Watch the video to learn more about spot ventilation solutions, such as bath vent fans and kitchen range hoods; and whole-house ventilation systems, such as energy recovery ventilators (ERVs) and heat recovery ventilators (HRVs).Read Improving Indoor Air Quality in Your Home for more information.IAGSIndoor air pollutionIndoor air qualitykitchenventilation Americans spend 90% of their time indoors—and much of that at work. According to the EPA, air pollution is up to five times worse inside than outside. Harsh cleaning chemicals contribute to the problem. In fact, one-third of the cleaning products that janitors handle contain chemicals that can cause skin and eye irritation, cancer, or reproductive disorders. And approximately 37 million Americans suffer from chemical sensitivity, so increased absenteeism and health costs can stem from using compounds that evaporate harmful materials into the air. Eco-cleaners are comparably priced and much safer for workers; the only downside is that it's a little harder to get our fave versions in bulk.Green Cleaning Pollution Prevention Calculator ofee.gov/janitor Estimate the eco- benefits of switching to greener janitorial supplies and services.Center for a New American Dream newdream.org/procure/products/approved.php List of green institutional cleaning supplies for big businesses.Shaklee Get Clean shaklee.com This maker of biodegradable, chlorine-free cleaners offers an auto-ship program for businesses.If 10,000 office buildings switch to green cleaning products, we'd eliminate the weight of more than 1.7 million laptops a year in nasty chemical cleaners.Jennifer Boulden is the cofounder of Idealbite.com, a free daily email offering bite-sized ideas for "light green living."Feedback: loop@fastcompany.com Film profiles the lives of three people living with COPD. It also promotes a drug manufactured by the pharmaceutical company that financed the documentary.Share on PinterestA new documentary has some simple advice for people living with chronic obstructive pulmonary disease (COPD).Both the people with COPD and the doctors in the 24-minute film emphasize that an active lifestyle and a healthy diet are key elements to making your life manageable if you're living with COPD.The documentary, "Clear the Air," also spotlights the effectiveness of Stiolto Respimat, the COPD inhaler spray manufactured by the pharmaceutical company that financed the film.The medication is also prominently displayed on the documentary's website.The sales pitch amid the profiles of three people living with the respiratory disease might be jarring to some.But to the people involved in the film and to activists within the COPD community, the trade-off is well worth getting the message out on the disease.Abbey LeVine, who directed the documentary, said she was inspired to get involved in the project because her mother lives with COPD."I realized it was a disease that needs more attention," LeVine told Healthline. "It was important to be able to tell a story that presents a way for people to see how little changes can lead to a more normal life.""Overall, I thought it was a good message," said Russell Winwood, an Australian in his early 50s who runs long-distance races despite being diagnosed with COPD in 2011. "I like the portrayal of patients who take control of their disease. Having patients background their stories is important as other patients can relate to them and take inspiration from how they manage their disease.""Clear the Air" focuses on three older adults who are working to make their lives more comfortable despite having COPD, a disease that affects one's ability to breathe and can severely limit physical activity.Bob Moss is a retired industrial worker and U.S. military veteran who now lives on the Hawaiian island of Kauai.Share on PinterestMoss was diagnosed with COPD in 2011. His doctors believe he developed the ailment due to his exposure to pollution and fumes in his line of work.In the film, Moss discusses being active and eating healthy. He also shows off his woodworking shop where he likes to make guitars.He and his wife, Kathy, also play together in a band. At one point in the film, Moss goes fishing with his doctor.Mary Savord lives on her own in the Upper Peninsula of Michigan.She was diagnosed with COPD in 2001 after many years of smoking.Share on PinterestHer diagnosis is not uncommon.According to the Centers for Disease Control and Prevention (CDC), tobacco smoke is a key factor among the 15 million people in the United States who've been diagnosed with COPD.The documentary's producers also note that 20 to 30 percent of smokers eventually develop COPD.Savord tries to stay active to keep up her endurance. One of her activities is her visits to the grocery store where she pushes her shopping cart.The film also shows Savord on an exercise machine at a medical facility, as well as joining others at a support group.Tina Lisenby is a retired university admissions officer.Share on PinterestThe South Carolina resident was diagnosed with COPD in 2009.Lisenby never smoked, but her doctors believe she developed her respiratory ailment from secondhand smoke. Her mother and father were both smokers.Lisenby also attends a support group and takes piano lessons.Her brother, Marc, lives in neighboring Georgia and visits often, despite Lisenby's insistence that she's fine on her own.People who are active in the COPD community told Healthline they welcomed the message the documentary presented.Winwood said he felt "Clear the Air" was an accurate portrayal."Life with COPD is different for everyone. We all have our challenges," he told Healthline. "The stories of these patients are believable and representative of many in the COPD community."However, despite the fact that most people are diagnosed with COPD in their later years, Winwood felt that a little younger crowd should have been represented."Many COPD patients are diagnosed in their 40s and 50s," he said. "I think a wider cross-section of age groups would be more effective."Karen Deitemeyer, in particular, liked the message of physical activity."Keep busy, that's the key. Don't sit on the couch," said Deitemeyer, who smoked until the early 1990s and was diagnosed with COPD in 2001.The Florida resident said she also liked how the three people profiled in the film each contracted the disease in a different way."I think that's very important," she told Healthline. She hopes people are inspired by the documentary."My hope is they get the message that you can live with COPD," Deitemeyer said.John Linnell, who was diagnosed with COPD in 2005, told Healthline he liked the way the patients and doctors interacted in the film."I was very impressed with the doctors," said Linnell, a retired manager in the retail and marketing industries. "I would encourage doctors to remember that the people they are talking to are people. They want to have a good quality of life."Linnell also liked the fact that the people profiled in the documentary were shown using oxygen tubes, a common treatment for COPD."People shouldn't be afraid of the stigma," he said. "The film was very much real world.""Clear the Air" was financed by Boehringer Ingelheim.About 14 minutes into the documentary, the patients and doctors begin talking positively about the pharmaceutical company's inhaler spray, Stiolto Respimat.That portion of the film, in which the inhaler is shown, lasts about two minutes.The final five minutes of the film also contains a legally required warning about potential side effects and recommended uses of the inhaler spray.Officials at the Food and Drug Administration (FDA) said they don't comment on specific products or companies.They did direct Healthline to the portion of their website that discusses how the agency handles advertising and promotion of medical products.Officials at Boehringer Ingelheim didn't respond to Healthline's request for an interview for this story, but in a press release they discuss the attributes of the film."We are incredibly proud to premiere this authentic cinematic reflection of three very different people living with COPD who share intimate details about their struggles and successes," said Jean-Michel Boers, president of Human Pharma, Boehringer Ingelheim Pharmaceuticals Inc. "We know that COPD has both a physical and emotional impact on people and this film captures the realities of COPD and the inspiring triumphs of Bob, Mary, and Tina. We hope this film will be a source of inspiration and education for others."Officials at a pharmaceutical industry organization also defended the film."Research shows that accurate information about disease and treatment options make patients and healthcare providers better partners. Providing FDA-regulated, scientifically accurate information to patients can help make sure that they are better informed about their healthcare and treatment options," Holly Campbell, a spokeswoman for the Pharmaceutical Research and Manufacturers of America (PhRMA), told Healthline.LeVine said she was given a "ton of creative leeway" by the pharmaceutical company while making the film.She said the inhaler is an important part of the overall treatment plan for the three people profiled, so she didn't have a problem including the product in the film."It would be almost impossible not to show the drug," she said.Dr. Breion Tafoya, a pulmonologist at Dickinson Pulmonology Clinic in Michigan who is Savord's doctor and is featured in the film, said the pharmaceutical company did pay her for "her time away from the office."However, Tafoya told Healthline she treats her patients with Stiolto Respimat and was comfortable talking about the product in the documentary."I offered a nonbiased opinion," she said. "The drug is one part of a larger treatment program in my office."Tafoya also said the main message of the film is for people living with COPD to take charge of their lives."Exercise and diet can make a large difference," she said. "One message I hope people learn is to be more proactive."For the most part, the COPD community activists weren't overly concerned about the product placement."Patient stories need to be told and large companies have the funds to make this happen," said Winwood. "That being said, I think subtle advertising is more effective. The product information at the end of this video, to me, makes this feel more like an infomercial than [a] purely patient story."Deitemeyer, who uses a different drug because she needs a steroid-based medication, wasn't bothered by the presence of the inhaler spray.She also had high praise for the company."They really care about their COPD patients," she said.Linnell said it's important for people with COPD to know there's a product out there that you only have to use once a day."It was obviously product placement," he said, "but I thought they did it in a way that showed a real world setting."

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