

# The outbreaks of both the Wuhan coronavirus and SARS likely started in Chinese wet markets.



Customers in a Chinese wet market on January 22, 2016. Edward Wong/South China Morning Post/Getty

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- A coronavirus that originated in Wuhan, China, has killed at least 360 people and infected more than 17,400.
  - **The Huanan Seafood Wholesale Market in Wuhan might have been the starting point of the outbreak. It was shuttered on January 1.**
  - **At many wet markets, meat is sold alongside a variety of live animals. But on January 22, Wuhan authorities banned the trade of live animals at wet markets.**
  - **Here's what the markets look like.**
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The coronavirus spreading in China and the SARS outbreak of 2003 have two things in common: Both are from the coronavirus family, and both likely started in wet markets.

At such markets, outdoor stalls are squeezed together to form narrow lanes, where locals and visitors shop for cuts of meat and ripe produce. A stall selling hundreds of caged chickens may abut a butcher counter, where meat is chopped as nearby dogs watch hungrily. Some vendors hock skinned hares, while seafood stalls display glistening fish and shrimp.

Wet markets put people and live and dead animals — dogs, chickens, pigs, snakes, civets, and more — in constant close contact. That makes it easy for a virus to jump from animal to human.

On January 22, authorities in Wuhan, China — where the current outbreak started — banned the trade of live animals at wet markets. The specific market where the outbreak might have begun, the Huanan Seafood Wholesale Market, was shuttered on January 1. The coronavirus that emerged there has so far killed at least 360 people and infected more than 17,400. (For the latest case total, death toll, and travel information, see [Business Insider's live updates here](#).)

“Poorly regulated, live-animal markets mixed with illegal wildlife trade offer a unique opportunity for viruses to spillover from wildlife hosts into the human population,” the Wildlife Conservation Society said in a statement.

Coronaviruses are zoonotic diseases, meaning they spread to people from animals. In the case of SARS, and likely this Wuhan coronavirus outbreak as well, bats were the original hosts. The bats then infected other animals, which transmitted the virus to humans.

Here's what Chinese wet markets look like.

The Huanan Seafood Wholesale Market in Wuhan closed on January 1 after it was found to be the most likely starting point for the outbreak of this coronavirus, called 2019-nCov.



Huanan Wholesale Seafood Market in Wuhan, China, on January 12, 2020. NOEL CELIS/AFP via Getty Images

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A 61-year-old man was the first person to die from the virus. According to Bloomberg, he was a regular shopper at the Huanan wet market, which sold more than seafood.

Reports indicate that before the Huanan market closed, vendors there sold seafood, meat, and live animals, including chickens, donkeys, sheep, pigs, foxes, badgers, bamboo rats, hedgehogs, and snakes.





A wet market in Beijing on July 3, 2007. Teh Eng Koon/AFP via Getty

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Wet markets like Huanan are common in China. They're called wet markets because vendors often slaughter animals in front of customers.

"That means there's a lot of skinning of dead animals in front of shoppers and, as a result, aerosolizing of all sorts of things," Emily Langdon, an infectious disease specialist at the University of Chicago Medicine, wrote in an article.

A report published on Friday challenges the idea that the virus emerged in the Huanan wet market, however.



A vender at a wet market in Nanning, China shows a pair of rabbits to buyers on January 28, 2004. Robert Ng/South China Morning Post/Getty

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Chinese scientists found that the first reported case of the Wuhan coronavirus from December had no link to the wet market, according to Science, which cited a report published in the medical journal, The Lancet.

What's more, 13 of 41 coronavirus cases had no link to the Huanan marketplace, the researchers said. More research is needed to pinpoint the outbreak's starting point with certainty.

Still, Wuhan authorities banned the trade of live animals at wet markets on January 22.





A wet market in Guilin, China, on June 19, 2014. David Wong/South China Morning Post/Getty

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Police in Wuhan began conducting checks to enforce the rule among the city's 11 million residents, the BBC reported, citing state media reports.

This type of intervention could help stop the spread of zoonotic viruses, experts say.



A wet market in Beijing on July 3, 2007. Teh Eng Koon/AFP/Getty

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“Governments must recognize the global public health threats of zoonotic diseases,” Christian Walzer, executive director of the Wildlife Conservation Society’s health program, said in a statement. “It is time to close live animal markets that trade in wildlife, strengthen efforts to combat trafficking of wild animals, and work to change dangerous wildlife consumption behaviours, especially in cities.”

The close proximity of shoppers to stall vendors and live and dead animals in wet markets make them breeding grounds for zoonotic diseases.





A Chinese produce market. Felix Wong/South China Morning Post/Getty

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Between 2002 and 2003, SARS killed 774 people across 29 countries. It originated in wet markets in the province of Guangdong.

In the case of SARS, humans caught the virus from weasel-like mammals called masked palm civets.





An Asian palm civet. Oleksandr Rupeta/NurPhoto/Getty

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But the civets weren't the original hosts of the disease.

Researchers figured out that SARS originally came from a population of bats in China's Yunnan province.



A greater horseshoe bat, a relative of the *Rhinolophis sinicus* species from China that was the source of the SARS virus. De Agostini/Getty

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“Coronaviruses like SARS circulate in bats, and every so often they get introduced into the human population,” Vincent Munster, a virologist at the Rocky Mountain Laboratories, told Business Insider.

Bats can pass along viruses in their poop: If they drop feces onto a piece of fruit that a civet then eats, the civet can become a disease carrier.

Experts haven’t yet confirmed the animal species that enabled the Wuhan coronavirus to spread to people.





A worker with a slaughtered pig at a wet market in Manila, Philippines, August 5, 2015. Romeo Ranoco/Reuters

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“There’s an indication that it’s a bat virus, spread in association with wet markets,” Munster said.

A group of scientists who edit the Journal of Medical Virology suggested the culprit in this case could be the Chinese cobra, but many other scientists say that’s highly improbable.



A Chinese cobra. Thomas Brown

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Scientists in China have figured out the genetic code of the Wuhan coronavirus. When researchers compared it with other coronaviruses, they found it to be most similar to two bat coronavirus samples from China.

Further analysis showed that the genetic building blocks of the Wuhan coronavirus resembled that of snakes. But it's unlikely to have jumped from a reptile to a human.

Virologist Cui Jie, who was on a team that identified SARS-related viruses in bats in 2017, told Nature that this coronavirus strain is clearly a “mammalian virus.”

“They have no evidence snakes can be infected by this new coronavirus and serve as a host for it,” Paulo Eduardo Brandão, a virologist at the University of São Paulo who is investigating whether coronaviruses can infect snakes, told Nature.

The H7N9 and H5N9 bird flus — also zoonotic viruses — were likely transmitted to humans in wet markets, too.





Ducks on top of chickens at a wet market in Shanghai. In Pictures Ltd./Corbis/Getty

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According to the World Health Organization, people caught those bird flus via direct contact with infected poultry in China. The diseases killed 1,000 people globally.

Bats and birds are considered reservoir species for viruses with pandemic potential, according to Bart Haagmans, a virologist at the Erasmus Medical Center in Rotterdam, Netherlands.



A chicken vendor on top of chicken cages at a wet market in Kowloon City, China, January 31, 2004. Dickson Lee/South China Morning Post/Getty

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“Because these viruses have not been circulating in humans before, specific immunity to these viruses is absent in humans,” Haagmans told Business Insider.

“There have been plenty of eminent epidemiologists predicting ‘pandemic X’ for a number of years now,” Adrian Hyzler, the chief medical officer at Healix International, told Business Insider.





Live chickens in a wet market in Guangzhou, China, May 5, 2014. K. Y. Cheng/South China Morning Post/Getty

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These pandemics “are more likely to originate in the Far East because of the close contact with live animals [and] the density of the population,” Hyzler added. His firm offers risk-management solutions for global travelers.

The Wuhan coronavirus outbreak isn’t considered a pandemic, however.



A seafood stall in a wet market in Hong Kong, June 25, 2015. Isaac Lawrence/AFP/Getty

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Since December 31, more than 17,400 cases of the Wuhan coronavirus have been reported across 25 countries, including the US. Symptoms include sore throats, headaches, and fevers, as well as pneumonialike breathing difficulties.

Haagmans said one of the challenges in containing this outbreak was that a substantial portion of infected people show only mild symptoms.

These people “may go unnoticed in tracing the virus and fuel the outbreak,” he said. “It seems that this actually may be the case now.”

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*Aria Bendix contributed reporting to this story.*

- Read more about the Wuhan virus:
- Everything we know about the deadly Wuhan virus sweeping across China



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Source:

<https://www.businessinsider.com/wuhan-coronavirus-chinese-wet-market-photos-2020-1>

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