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UNDIAGNOSED PNEUMONIA - CHINA (HUBEI) (07): OFFICIAL CONFIRMATION OF NOVEL CORONAVIRUS

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A ProMED-mail post

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[1]

Date: 9 Jan 2020

Source: CCTV / Xinhua [in Chinese, machine translation]

<http://news.cctv.com/2020/01/09/ARTIMxiGSCIHAjC4B1Gy2VcP200109.shtml?spm=C94212.P4YnMod9m2uD.ENPMkWvfnaIV.102>

Preliminary progress in pathogen identification of unexplained viral pneumonia in Wuhan

Original title: Experts say that the new coronavirus is an unknown cause of viral pneumonia in Wuhan

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A few days ago, on the issue of the pathogenic identification of unexplained viral pneumonia epidemic in Wuhan, the reporter interviewed Xu Jianguo, the leader of the preliminary assessment of pathogenic test results and a member of the Chinese Academy of Engineering. He said that the expert group believed that the pathogen of this unexplained case of viral pneumonia was initially determined to be a new coronavirus.

Question 1: At present, what progress has been made in the pathogenic identification of unexplained viral pneumonia in Wuhan?

Xu Jianguo [response]: As of 21:00 on [7 Jan 2020], a new coronavirus was detected in the laboratory, and the entire genome sequence of the virus was obtained. A total of 15 positive results of the new coronavirus were detected by nucleic acid detection methods. From 1 positive patient. The virus was isolated from the samples and showed a typical

coronavirus appearance under an electron microscope. [Does this refer to 15 samples from 1 single patient? Or initially from 1 patient?]

The expert group believes that the pathogen of this unexplained case of viral pneumonia was initially identified as a new type of coronavirus.

Question 2: How is the pathogen identification carried out?

Xu Jianguo [response]: The tissue laboratory used genomic sequencing, nucleic acid detection, virus isolation and other methods to perform pathogenic tests on patients' alveolar lavage fluid, throat swabs, blood and other samples.

Question 3: What procedures are needed to identify the pathogen?

Xu Jianguo [response]: To confirm the cause of an epidemic disease, usually the following points must be met: (1) Suspicious pathogens must be found in patients, and pathogenic nucleic acids can be detected in clinical samples of patients; (2) From clinical samples of patients The pathogen can be successfully isolated; (3) The isolated pathogen can cause the same disease symptoms after infecting the host animal. The patient's serum antibody titer during the recovery period increased 4-fold, which can help identify the pathogen.

Finding the nucleic acid, genomic and antibody evidence of the pathogen from the patient can be done in a short time. Scientific research, such as pathogen isolation and pathogenicity identification, can take weeks. The development of specific drugs and vaccines against a new pathogen may take years to complete.

Question 4: What is the next step?

Xu Jianguo [response]: The expert group believes that the pathogen of this unexplained case of viral pneumonia is initially determined as a new type of coronavirus. The next step is to conduct expert research and judgement in combination with etiology research, epidemiological investigation and clinical manifestations.

Question 5: What is a coronavirus?

Xu Jianguo [response]: Coronavirus is a type of pathogen that mainly causes respiratory and intestinal diseases. There are many regularly arranged protrusions on the surface of this type of virus particle, and the entire virus particle is like an emperor's crown, hence the name "coronavirus". In addition to humans, coronaviruses can infect many mammals such as pigs, cattle, cats, dogs, marten, camels, bats, mice, hedgehogs, and various birds. So far, there are 6 known human coronaviruses. Four of these coronaviruses are more common in the population and are less pathogenic, generally causing only minor respiratory symptoms similar to the common cold. The other 2 coronaviruses - Severe Acute Respiratory Syndrome Coronavirus and Middle East Respiratory Syndrome Coronavirus, also known as SARS Coronavirus and MERS Coronavirus, can cause severe respiratory diseases. The new coronavirus that caused the epidemic is different from the human coronaviruses that have been discovered, and further understanding of the virus requires further scientific research.

[Editor: Zhang Yuling Responsible editor: Wang Jingdong]

[Byline: Qu Ting]

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[2]

Date: 8 Jan 2020

Source: NY Times [Edited]

<https://www.nytimes.com/2020/01/08/health/china-pneumonia-outbreak-virus.html>

## China Identifies New Virus Causing Pneumonia-Like Illness

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The new coronavirus doesn't appear to be readily spread by humans, but researchers caution that more study is needed.

Researchers in China have identified a new virus that is behind a mysterious pneumonia-like illness that has sickened 59 people in Wuhan and caused a panic in the central Chinese region. There's no evidence that the virus, a coronavirus, is readily spread by humans, and it has not been tied to any deaths. But health officials in China and internationally are watching it carefully, as it comes from the same region where the deadly SARS epidemic broke out in the early 2000s.

Experts said the pathogen that caused these unexplained pneumonia cases had been "initially identified" as a new coronavirus, China's state broadcaster, China Central Television, said on Thursday [9 Jan 2020]. They detected this virus among 15 of the people. The new coronavirus "is different from previous human coronaviruses that were previously discovered, and more scientific research is needed for further understanding," CCTV said in its report. Coronaviruses are a large family of viruses that infect animals and people. Some cause only the symptoms known as the common cold -although many other viruses also do that.

The Wuhan government confirmed on [31 Dec 2020] that health authorities were treating dozens of cases of pneumonia of unknown cause. Symptoms of the new illness include high fever, difficulty breathing and lung lesions, the Wuhan health commission has said. No deaths have been reported, but 7 people have become critically ill. On Wednesday [8 Jan 2020], the local health commission said 8 people had been discharged.

The revelations set off a panic in a country where the memory of the SARS outbreak remains fresh. SARS, a dangerous respiratory disease and also a coronavirus, spread from southern China in 2003 and infected more than 3000 people, killing 774.

The new illness appeared just weeks before the Spring Festival, the country's biggest holiday, when hundreds of millions of people travel. The authorities have urged the public to be on alert for pneumonia-like symptoms like fevers, body aches and breathing difficulties.

Until Thursday's [9 Jan 2020] announcement, it was not clear what was causing the illnesses in Wuhan. The World Health Organization said Wednesday [8 Jan 2020] that it had concluded that it was most likely a coronavirus. "More comprehensive information is required to confirm the pathogen," the W.H.O. said in a statement.

Early reports on ProMED, a disease-alert service, said there was no evidence of human-to-human transmission.

Last weekend, laboratory tests in China ruled out SARS; the deadly Middle East Respiratory Syndrome, or MERS; the flu; bird flu; adenoviruses; and other common pathogens

that cause pneumonia.

The initial cases of pneumonia were linked to workers at a market in Wuhan that sold live fish, animals and birds. Workers disinfected and shut down the market in Wuhan after the city health department said it traced many of the cases to it.

Health authorities in Asia have stepped up screenings and isolated patients with flulike symptoms who have traveled to Wuhan. In Hong Kong, 8 people with fever and respiratory symptoms who had traveled recently to Wuhan were hospitalized as of Wednesday [8 Jan 2020]. In South Korea, the authorities said on Wednesday [8 Jan 2020] that they had put a Chinese woman under isolated treatment after she was found to have pneumonia after trips to China, including Wuhan. In Singapore, the authorities placed a Chinese girl with pneumonia in isolation because she had traveled to Wuhan, then said on Sunday [5 Jan 2020] that doctors had found that the child had a common childhood viral illness. Officials in Hong Kong have installed additional thermal imaging systems at its airport to monitor passengers coming from Wuhan, scanning for people with fevers.

SARS is believed to have jumped to humans from live-animal markets. It was eventually traced to civet cats, raccoon dogs and some other species that were raised and slaughtered for the exotic food trade. The virus normally circulates in bats, and the animals may have gotten it from them, possibly from eating food contaminated by bat droppings.

Most outbreaks of MERS, which appeared in 2012, have been traced to people who raise or sell camels, which are kept in the Middle East for meat, milk, racing, hauling cargo and as pets. Like SARS, it can jump from person to person, particularly in hospitals. Some patients infected many others after they were put on machines to help them breathe - the mechanisms helped spew viral particles into the air as they exhaled.

Virologists want to know which patients tend to get the virus, what symptoms they show, what animals - if any - the virus has been found in and what behavior helped the virus jump from animals to humans.

And they want to quickly figure out what countermeasures, such as antiviral drugs or breathing machines, help treat the illness.

[Bylines: Sui-Lee Wee and Donald G. McNeil Jr.]

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[The above interview is further confirmation that the Wuhan Institute of Virology expert group identified a novel coronavirus [CoV]. The fact that this novel coronavirus was identified in 15 people is highly suggestive that at least 15 of the 59 suspected cases may have been infected by the same CoV.

A question that comes to mind is whether Hong Kong could identify the novel coronavirus in those suspected cases with history of travel to Wuhan who presented with febrile respiratory illnesses but did not have etiologic agents identified (see Undiagnosed pneumonia - China (06): (HU) Hong Kong surveillance, USA CDC alert 20200108.6876648 and Undiagnosed pneumonia - China (04): (HU) Hong Kong surveillance 20200106.6874277 for details.). An updated line listing of suspected cases followed by Hong Kong can be found at: [https://www.chp.gov.hk/files/pdf/enhanced\\_sur\\_pneumonia\\_wuhan\\_eng.pdf](https://www.chp.gov.hk/files/pdf/enhanced_sur_pneumonia_wuhan_eng.pdf).

We await further information from knowledgeable sources on the detailed sequence(s) of the novel coronavirus and where on the phylogenetic tree this novel coronavirus sits, i.e., which other known coronaviruses are close relatives. There are many questions that remain, including whether this virus has been identified in any of the wildlife from this market. And more clinical and epidemiologic details on the suspected and presumably confirmed cases. And are other "undiagnosed pneumonia" cases in Wuhan being tested for this novel coronavirus?

Making the sequence available as quickly as possible would allow diagnostic testing to be performed elsewhere and allow us to know whether this virus has appeared elsewhere in humans or other species.

A map of China showing locations of major cities in China can be found at <https://www.chinadiscovery.com/china-maps/city-maps.html>.

The HealthMap/ProMED map of China: <http://healthmap.org/promed/p/155> - Mod.MPP]

## See Also

Undiagnosed pneumonia - China (06): (HU) Hong Kong surveillance, USA CDC alert 20200108.6876648

Undiagnosed pneumonia - China (05): (HU) novel coronavirus identified 20200108.6877694

Undiagnosed pneumonia - China (04): (HU) Hong Kong surveillance 20200106.6874277

Undiagnosed pneumonia - China (03): (HU) updates, SARS, MERS ruled out, WHO, RFI 20200105.6872267

Undiagnosed pneumonia - China (02): (HU) updates, other country responses, RFI 20200103.6869668

Undiagnosed pneumonia - China (01): (HU) wildlife sales, market closed, RFI 20200102.6866757

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Undiagnosed pneumonia - China (HU): RFI 20191230.6864153

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