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THE NEW YORK TIMES INTERNATIONAL SATURDAY, OCTOBER 15, 2022 THE NEW YORK TIMES INTERNATIONAL SATURDAY, OCTOBER 15, 2022

**VISUAL INVESTIGATIONS** 

# The Final Days of a Chinese Doctor Who Sounded an Early Alarm on Covid-19



DEC 2019

Dr. Li Wenliang is working as an Hospital. In late 2019, he sends some messages to friends in a public on Dec. 30, 2019, and immediately set off concern.

Leaked to the Public ▶ ophthalmologist at Wuhan Central private group chat warning them of an emerging virus. He also sends a photo of a virus sequencing report with the words "SARS-like coronavirus." These messages leak to the

〈 1 武汉大学临床 04級(146) △ ○ … An Apology Letter Even as the number of people infected with the virus in-李文亮 武汉 银科 creases, officials are trying to 华南水果海鲜市场确诊了7例 control the message. Dr. Li's employer makes him write a formal apology letter for sending the messages. In the letter, the content of which was obtained by The Times, he writes that he deeply regrets the negative

impact he has caused.

武汉市公安局 武昌分局 中南路街派出所 训诫书 \_\_\_\_\_性料 剪\_\_\_\_出身年月 19861012 进法行为 (时间、沧点、参与人、人数、反映何问题、后果等)。 2019 年 12 月 30 日在微信料 "武汉大学临床 04 级" 发表有 三年由大果海鲜市场确设 7 例 SARS 的不属实的言论。 OFFICIAL 现在依法对你在互联网上发表不属实的言论的违法问题提出警 示和训诫。你的行为严重抗乱了社会秩序。你的行为已超出了法律 所允许的范围。违反了《中华人民共和国治安管理处罚法》的有关 · 公安机关希望你积极配合工作。听从民警的规划,

2 /

Reprimand Dr. Li 武公(中)字(20200103) Police in Wuhan reprimand Dr. Li, and make him sign a statement promising to never spread rumors again. The same day, Wuhan health authorities publicly insist this new virus is not known to transmit between humans 1. From now on, Stop this illegal

(Dr. Li's thumbprint)

**OFFICIAL** 

**定生刀双宿思有。初疋彦汀工作万条,切头似封平及巩、平彦朝、平閤风、平宿灯,果中专系和页**源 全力救治。二是深入开展流行病学调查。调查发现患者主要为武汉市华南海鲜批发市场经营、采购人 员,2020年1月1日已对华南海鲜批发市场采取休市措施,并对全市公共场所,特别是农贸市场进一步 加强防病指导和环境卫生管理。三是广泛宣传防病知识,增强公众自我防护意识。四是配合国家和省 进行病原学研究。五是配合国家卫生健康委及B 1 世界卫生组织等通报疫情信息。 自2020年1月3日以来未发现新发病例。目前,**未发现医务人员感染** 未发现明确的人传人证据。 我市将继续加强患者教治、流行病学调查、深入开展爱国卫生运动,做好防病知识普及、维护人民 2 当前,正处于冬春季传染病高发季节,公众要保持室内空气流通,尽量避免到封闭、空气不流通 的公众场合和人群集中地方,必要时可佩戴口罩。如有发热、呼吸道感染症状、特别是持续发热不 退,要及时到医疗机构就诊。(来源:武汉市卫生健康委)

■ "No Medical Workers Infected" Authorities release a statement insisting that there is no evidence the virus is transmissible among humans and no medical worker has been infected. Neither is true. On this day, Dr. Li has a fever. A CT scan shows he has a lung infection The next day, he checks into Wuhan Central Hospital.

1. No medical workers are infected; 2. No clear human-to-human transı 3. Multiple sites of infection.



LEFT AND ABOVE: BEIJING YOUTH DAILY; INSET: EXPRESS VIA REUTERS CONN

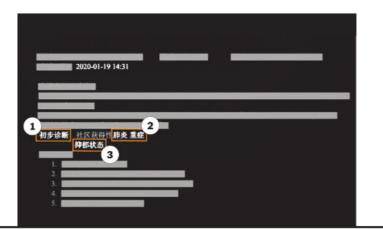


■ No New Official Cases Between Jan. 11 and Jan. 16. Wuhan health authorities do not report a single new case of people infected with the emerging virus. Internal documents obtained by The Times show that there is a confusing process in place for hospital staffers. Approvals to report new cases are subject to shifting instructions from districtlevel, city-level and provinciallevel bureaucracies.

OFFICIAL

JAN. 19 "Depressive State" ▶ Records show that Dr. Li has a severe illness and requires oxyger support. He is also struggling mentally, and is described as being in a "depressive state." The diagnosis does not attribute his condition to any specific cause but notes he has trouble sleeping and has lost his 1. PRIMARY DIAGNOSIS

2. SEVERE PNEUMONIA 3. DEPRESSIVE STATE



→ JAN 2020



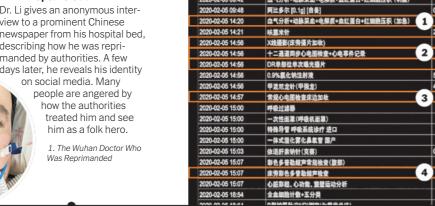
**▲ A Turning Point** For the first time, the government acknowledges that there is clear evidence the virus is contagious among humans. Wuhan hospitals soon become over whelmed by the number of people infected.



The entire city of Wuhan goes into lockdown.



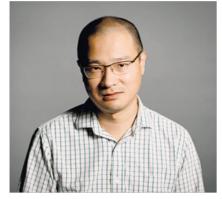




**◄ FEB. 5 Deteriorating Condition** According to Dr. Yuan Jin (right), a pulmonary and critical care doctor at Good Samaritan Medical Center in Brockton, Mass., Li Wenliang's medical team ordered several tests for his lungs and heart, indicating they were responding to a worsened condition on this day. Dr. Wu Yuanfei (left), a virologist at Chan Medical School at the University of Massachusetts who also reviewed the documents for The Times, said his illness started acutely and developed very fast.

. Blood gas analysis + arterial blood collection + electrolytes nemoglobin + hematocrit test (stat) 2. X-ray photography (additional charge for portable X-ray); Twelve-read ECG examination cardiac monitoring; Digital radiography single-site single-exposure photography 3. Routine ECG examination (additional charge for bedside ECG) 4. Routine Color Doppler Ultrasonography (abdomen); Color Doppler Ultrasonography, bedside; Echocardiogran FEB. 2020





FEB. 6 HOUR BY HOUR ▶ 10:46 A.M. Doctors write in Dr. Li's lungs are severely damaged and he is at risk of multiple organ failure. Experts The Times say his doctors should at this point, or bet

1 WUHAN CENTRAL HOSPITAL 2. PROGRESS NOTE; 3. Multiple

11:58 P.M. An entry in the daily

ECMO. But there is no record of

FCMO in the doctor's notes — a

set of documents listing exams

B leaves the I.C.U. around this

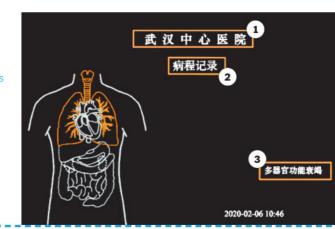
time. According to him, ECMO has

not been used, because an instru

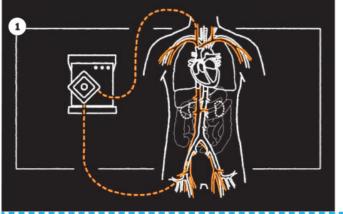
ment needed for the procedure is

progress notes from this time says

the medical team has put Dr. Li or

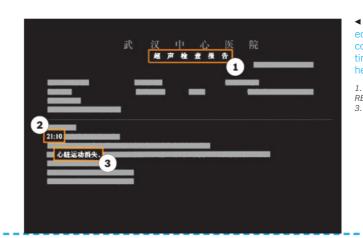


into cardiac arrest CPR. His pupils stop



I.C.U around this time. He e to be useful. He savs Dr. Li

■ 9:00 P.M. Dr. B, a doctor at



ime shows that Dr. Li's . ECHOCARDIOGRAM 3. NO HEART MOVEMENT



■ 10:40 P.M. "Life Times." a olishes an article that say Dr. Li's time of death was 9:30 P.M. The article is later contra-

1. Passed away at 9:30 P.M.

1 中心医院 ●● 国 我院眼科医生李文亮,在抗击新型冠状病毒感染的 肺炎疫情工作中不幸感染,经全力抢救无效,于 2020年<mark>2月7日凌晨2点58分去世</mark>,对此我们深表 痛惜和哀悼。 2 **◄ FEB. 7 3:48 A.M.** 

Wuhan Central Hospital releases a statement that Dr. Li Wenliang has died. The official time of death is 2:58 A.M.

1. 3:48 A.M.; 2. Passed away at 2:58 A.M. on February 7

## A Times investigation sheds light on the death of Dr. Li Wenliang, 34, a national hero who faced censorship and then fell ill himself.

This article is by Muyi Xiao, Isabelle Qian, Tracy Wen Liu, Chris Buckley, Drew Jordan and Jeff

In early 2020, in the Chinese

city of Wuhan, Dr. Li Wenliang lay in a hospital bed with a debilitating fever. He was no ordinary patient, and even then — before Covid had its name — he feared that this was no ordinary ailment. Dr. Li was widely regarded in China as a heroic truth-teller. He had been punished by the authorities for trying to warn others about the virus, and then, in a terrible turn, had become severely sickened by it. Weeks later, he would become China's most famous fatality of the emerging pandemic. He was 34.

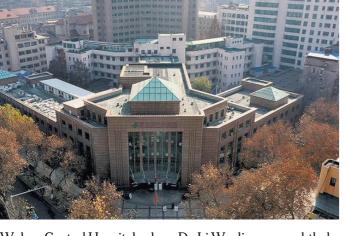
His death set off an outpouring of grief and anger on a scale and intensity rarely seen in China. More than two years later, Dr. Li remains a galvanizing figure, a tion measures that were used and symbol of frustration with the government's suppression of independent voices. His profile on prisals from the Chinese governthe Chinese social media site, Weibo, regularly receives hundreds of comments a week, and has become a place where people pay tribute and share their personal stories.

A government investigation Li's death concluded in a report that the Wuhan Central Hospital him. But a more complete picture of his medical care and his treatment by the authorities has remained elusive

Investigations team has now filled ical records for The Times. in some of these gaps with an ex-

sie Chen contributed reporting

from Seoul



Wuhan Central Hospital, where Dr. Li Wenliang, an ophthalmologist, started hearing of a SARS-like virus in late 2019.

clusive interview with one of Dr. portant new details about his ill-Li's colleagues. He provided a ness and treatment. firsthand account of Dr. Li's final hours, describing the resuscitadiscussed. He is referred to only ing government attempts to cenas Dr. B because he is afraid of re-sor him. ment. The Times talked to Dr. B

An Acute Illness via video, and verified his identity with public information.

The Times also obtained and examined internal memos from Wuinto the circumstances around Dr. backed up Dr. B's account. The a lung infection and other sympmedical records have been verihad spared no effort to try to save that match publicly available in-records for The Times, by the to join medical workers fighting nese medical experts, who have and required oxygen support. experience treating Covid patients or have practiced in Chi-The New York Times's Visual nese hospitals, reviewed the med-

dence that Dr. Li's medical care gist at the Chan Medical School at breathing became extremely la-Claire Fu contributed research. El- was compromised. But these doc- the University of Massachusetts, bored. uments, along with Dr. B's account in Worcester. and experts' analysis, reveal im-

Taken together, they show how

Dr. Li spent his last 39 days fighting a deadly virus — and navigat-

In early 2020, the virus was spreading rapidly in Wuhan, the city in China where the pandemic han Central Hospital and Dr. Li's first took hold. Dr. Li checked into medical records, some of which the hospital on Jan. 12 with a fever, toms. According to several of the tal bed, he took more interviews fied by experts and contain details doctors who reviewed his medical formation. Eight U.S.-based Chithird day, Dr. Li was seriously ill the outbreak.

"He was infected with an early variant of the virus, so the illness started acutely, its course was life But on Feb. 5, Dr. Li's condition dethreatening and it developed very teriorated severely — his pneu-The investigation found no evi- fast," said Dr. Wu Yuanfei, a virolo- monia grew worse, and his

the records, the treatment Dr. Li received, in general, followed the norms of that time for managing the symptoms of coronavirus pa-A little over a week into Dr. Li's

hospital stay, his doctors wrote

that he was struggling mentally and diagnosed him as being in a depressive state, a detail that has not been reported. The record did not attribute his emotional condition to any specific factors, but noted that Dr. Li had lost his appetite and couldn't sleep at night. He was kept in an isolation

ward, allowed to communicate with his family only via video chat. He had just weeks earlier been disciplined by the police for warning friends in a private group on WeChat, a Chinese social media service, about the new virus that was spreading through the city. His employer — Wuhan Central Hospital, where he worked as an eye doctor — had made him write a letter of apology, the content of which was obtained by The Times.

Despite the official warnings, on Jan. 27, 2020, Dr. Li gave an anonymous interview to a prominent Chinese newspaper, describing how he had been reprimanded for trying to raise the alarm. Eventually, he revealed his identity on social media, and instantly became a folk hero. From his hospiand said he hoped to recover soon

## Deterioration

That afternoon, Dr. Li's doctors The experts said that based on ordered several tests of his lungs



Mourners gathered at a vigil for Dr. Li in New York City on Feb. 9, 2020. His death set off an outpouring of grief and anger on a scale and intensity rarely seen in China.

and heart, his medical records show. According to Dr. Yuan Jin, a pulmonary and critical care doctor at Good Samaritan Medical Center in Brockton, Massachusetts, these exams suggest that his medical team was responding to a worsened condition.

By the morning of Feb. 6, doctors wrote in the progress notes that Dr. Li was at risk of multiple organ failure. Several physicians we spoke to said that his condition was so serious that his medical team should have at this point, or before it, considered intubating him and placing him on a ventilator — a higher level of oxygen sup-

The records indicate that Dr. Li had earlier been given oxvgen through a nasal tube, and then an additional oxygen mask. His medical team also tried to use a noninvasive ventilator on Jan. 19, but wrote that "the patient could not tolerate."

It is unclear why Dr. Li was not intubated. Some doctors are more reluctant to intubate young patients; sometimes the patients themselves refuse it. To this day, there is no consensus on when invasive ventilators should be used on Covid-19 patients.

On Feb. 6, Dr. Li went into cardiac arrest at around 7:20 p.m. Though his daily progress note CPR — a procedure that is applied records.

bated him at that point, a common practice during resuscitation. The note said his pupils were not responding to light.

According to the medical

records, doctors tried to revive Dr. Li for more than seven and a half hours, but his heart never resaid doctors placed Dr. Li on ex-

ation. Also known as ECMO, it is a last resort, invasive treatment involving a machine that siphons blood out of the patient, runs it through an oxygenator and pumps it back into the body. According to Dr. B, who arrived at Dr. Li's intensive care ward around 9 p.m., about two hours af-

tracorporeal membrane oxygen-

ter Dr. Li entered cardiac arrest, the hospital's leadership pushed the medical team to use ECMO because it wanted to show the public that no effort had been spared. But several doctors in the room argued that by that point it was too late for it to have been of any use, an assessment that six physi-

cians we talked to agreed with. Dr. B also said putting Dr. Li on ECMO, given its invasive nature, would have been an "insult to his Dr. B left the room around midnight. He said ECMO had not been

used because an instrument to perform the procedure was not available. It is unclear whether it was ultimately used after he left. There is also no indication in the doctors' orders from that night that the procedure was ever ad-

ministered But for some reason, the daily did not explicitly say that his heart progress notes say ECMO was had stopped, it recorded that the used. It was the only discrepancy medical team started performing of this kind found in the medical

## in such an emergency. They intu- The Death of Dr. Li

That night, conflicting messages about Dr. Li's condition — some released by state media outlets, then deleted - generated confusion. At 10:40 p.m., a state-run publication, Life Times, said that he had died at 9:30 p.m.

It was nearly 4 a.m. the next

morning, Feb. 7, when the hospital finally announced Dr. Li's death. It said he had died at 2:58 a.m. The government's investigation cited an electrocardiography performed at this time that showed he had flatlined The Times's investigation found

that among the records was an echocardiogram report from around 9:10 p.m. the previous evening that showed that his heart had stopped beating. "I think Dr. Li Wenliang had al-

ready died by the time I saw him around 9 p.m. on Feb. 6," Dr. B said. He added: "The normal process at this point would have been to pronounce him dead." "They dragged their feet for so

long over the announcement. It's like the hospital really did not treat us as human beings," he said. For Dr. B, going public with his version of events was an attempt to get his story out and honor Dr. Li's legacy. The Times made multiple at-

tempts to contact Dr. Li's medical team, but none agreed to answer questions. The press office of Wuhan Central Hospital told The Times that it was not accepting interviews from international media outlets. China's National Supervisory Commission, the country's top disciplinary body investigating Dr. Li's death, did not respond to requests for comment The Chinese Embassy in Washington, D.C., did not respond to requests for comment.