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# A short history of laboratory leaks and gain-of-function studies

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*By Professor Paul R. Goddard*

Two myths have hindered investigations into the origins of the SARS-CoV-2 virus: one, that viruses seldom escape from laboratories; and two, that most pandemics are zoonotic, caused by a natural spillover of a virus from animals to humans.

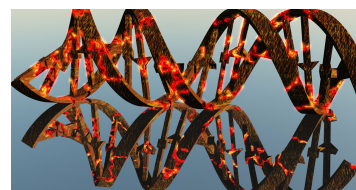
Promoters of the first myth include the World Health Organization (WHO). At a press conference in Wuhan, China, in February 2021, Peter Ben Embarek, the head of the WHO inspection team tasked with looking into the origins of the virus, said ([/en/news/archive/2021-articles2/19691](#)) it was “extremely unlikely” that it had leaked from a lab and as a result the lab escape hypothesis would no longer form part of the WHO’s continuing investigations.[1]

Dr Peter Daszak, president of the EcoHealth Alliance, has promoted both myths. As long ago as 2012, Dr Daszak co-authored a paper (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3712877/>) in The Lancet claiming that “Most pandemics - e.g. HIV/AIDS, severe acute respiratory syndrome, pandemic influenza - originate in animals”. [2] Since the start of the pandemic, he has claimed ([/en/news/archive](#)



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*A guide through the smokescreen*

/2020-articles/19437) that “lab accidents are extremely rare”, and that they “have never led to large scale [disease] outbreaks”. He also said that suggestions that SARS-CoV-2 might have come out of a lab are “preposterous”, “baseless”, “crackpot”, “conspiracy theories”, and “pure baloney”. [3]

In September 2020 Dr Anthony Fauci, director of the US National Institutes of Health’s (NIH) National Institute of Allergy and Infectious Diseases (NIAID), and his co-author wrote ([https://www.cell.com/cell/pdf/S0092-8674\(20\)31012-6.pdf](https://www.cell.com/cell/pdf/S0092-8674(20)31012-6.pdf)) in a paper about COVID’s origins, “Infectious diseases prevalent in humans and animals are caused by pathogens that once emerged from other animal hosts.” [4] Fauci has tried to quash the notion that SARS-CoV-2 could have come from a lab. In May 2020 he said (<https://www.foxnews.com/opinion/fauci-covid-lab-leak-origin-theory-china-jason-chaffetz>) that the virus “could not have been artificially or deliberately manipulated” and in October 2020 that year that the lab leak theory was “molecularly impossible”. [5]

But emails uncovered (<https://nypost.com/2022/01/24/emails-reveal-suspected-covid-leaked-from-a-wuhan-lab-then-censored-themselves/>) this year by a Freedom of Information request in the US reveal a wide gap between what Fauci was being told by experts about the virus’s origins and what he was saying publicly. In January 2020, a group of four virologists led by Kristian G. Andersen of the Scripps Research Institute told Fauci that they all “find the genome inconsistent with expectations from evolutionary theory” [6] - in other words, it likely didn’t come from nature and could have come from a lab.

Fauci hastily convened ([https://www.theepochtimes.com/behind-the-scenes-of-the-natural-origin-narrative\\_4023181.html](https://www.theepochtimes.com/behind-the-scenes-of-the-natural-origin-narrative_4023181.html)) a teleconference with the virologists on 1



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February 2020.[7] As the New York Post reported (<https://nypost.com/2022/01/24/emails-reveal-suspected-covid-leaked-from-a-wuhan-lab-then-censored-themselves/>), “Something remarkable happened at the conference, because within three days, Andersen was singing a different tune. In a Feb. 4, 2020, email, he derided ideas about a lab leak as ‘crackpot theories’ that ‘relate to this virus being somehow engineered with intent and that is demonstrably not the case’.”[8]

Andersen and his colleagues then published an article (<https://www.nature.com/articles/s41591-020-0820-9>) on 17 March 2020 in the journal Nature Medicine that declared, “Our analyses clearly show that SARS-CoV-2 is not a laboratory construct or a purposefully manipulated virus.”[9] The article was highly influential (<https://nypost.com/2022/01/24/emails-reveal-suspected-covid-leaked-from-a-wuhan-lab-then-censored-themselves/>) in persuading the mainstream press not to investigate lab leak theories.[10]

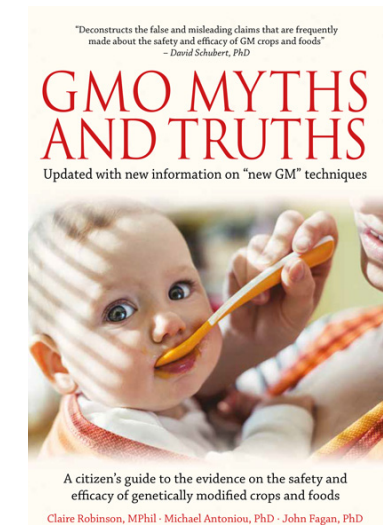
While the emails do not prove a conspiracy to mislead the public, they certainly make it more plausible. Just one day after the teleconference at which his experts explained why they thought the virus seemed manipulated, Francis Collins, then-director of the NIH, complained (<https://nypost.com/2022/01/24/emails-reveal-suspected-covid-leaked-from-a-wuhan-lab-then-censored-themselves/>) about the damage such an idea might cause.

“The voices of conspiracy will quickly dominate, doing great potential harm to science and international harmony,” he wrote on 2 February 2020, according to the emails.[11]

But there is another reason why Fauci and Collins might not want the lab leak idea to take hold. Dr Daszak’s EcoHealth Alliance had channelled funding (<https://theintercept.com/2021/09/09/covid-origins-gain-of-function-research/>) from the NIH’s NIAID to the Wuhan Institute of Virology (WIV) in China, for dangerous gain-of-function (GoF) research on bat coronaviruses. So money from organisations headed by Fauci, Collins, and Daszak funded research that could have led to the lab leak that some believe caused the pandemic.[12]

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While it should have been clear from the beginning that Drs Fauci and Daszak have strong vested interests in denying the lab leak theory, until recently their assertions were taken as objective fact by most science writers and media.

But a brief look at the history of lab leaks and the origins of pandemics confirms that their claims are highly misleading. Research shows that the escape of viruses from laboratories and supposedly contained experiments, such as vaccine research and programmes, is a common occurrence. In addition, many pandemics have arisen from lab escapes and almost all have not been directly zoonotic. Even when viruses do ultimately originate in animals and make the jump into humans, they mostly fester in a separated community of human beings for many years - centuries or millennia - before spreading during abnormal movements of people due to wars and famines.

## What is GoF research?

In its broadest definition (<https://www.ncbi.nlm.nih.gov/books/NBK285579/>), GoF research provides a virus or other microbe with a new function, such as making it more virulent or transmissible, or widening its host range (the types of hosts that the organism can infect).[13] Through GoF, researchers can create new diseases in the laboratory.

GoF can be achieved by any selection process that results in changes in the genes of the organism and as a result, its characteristics. One example of such a process is passing a virus through different animal cells, which can result in a loss of function (weakening it) or a gain of function (making it more able to replicate in a new host species). The researcher can then select the altered organism, depending on the purpose of the research.

In the last decade, GoF researchers have used genetic engineering to directly intervene in the genome of viruses to enhance a desired function.

But long before GoF studies involving deliberate genetic alteration, researchers had started to experiment with widening the host range of certain viruses, in order to

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develop vaccines. Often these experiments had unintended outcomes, including causing outbreaks of the disease being targeted.

## Smallpox

An example is the development of the smallpox vaccine. Most of us are aware of how Edward Jenner in 1796 put cowpox to work in a new way, to infect humans. This led to the successful vaccination programme that eventually eliminated smallpox from the world.

But what many people do not know is that the experiments of 1796 were not his first attempts at using an animal pox in humans. His first subject was his baby son, who had been born in 1789. He inoculated the lad with swinepox and later tested the inoculation's effectiveness with smallpox. As Greer Williams pointed out in the book *Virus Hunters*, "The best we can say for this experiment is that it muddied the water... whether the experimental infections had anything to do with [the son's] mental retardation it is impossible to say." [14]

Vaccination does not give immunity from smallpox for life: A booster is required every few years. The last person to die from smallpox was Janet Parker, a photographer who worked on the floor above a lab in Birmingham, UK, where research on the virus was being conducted. She had been vaccinated against smallpox in 1966 but contracted the disease in 1978 when the virus escaped from the lab by an unknown route. She died some days later (see Table 1).

Introducing a virus or other microbe to a new host has historically been associated with problems. Before Jenner, inoculation with variola minor (smallpox from a sufferer with minor disease), had been used as a preventive measure in China as early as the tenth century. [15] Variolation, as it was termed, was introduced to the UK in 1717, but is reported to have killed 1 in 25. So Jenner's experiments have to be viewed in the light of the contemporary practice, which was killing 4% of those inoculated.



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What is more, as Greer Williams noted, variolation was an “excellent way of spreading the disease and starting new epidemics”.[16]

## Yellow fever

In 1900 the French had given up on building the Panama Canal due to yellow fever decimating the workers. Eventually the disease was conquered in the region by a mosquito eradication programme (<https://armyhistory.org/major-walter-reed-and-the-eradication-of-yellow-fever/>) based on the experiments of the US Army surgeon Major Walter Reed.[17] This success was crucial to the completion of the project in 1914.

But what is often forgotten is that a series of doctors and laboratory workers died trying to combat yellow fever. In 1900 Dr Jesse W. Lazear was the first researcher to die from yellow fever after he apparently allowed (<https://www.historyofvaccines.org/content/jesse-lazear>) himself to be bitten by an infected mosquito as part of his experiments.[18] Between 1927 and 1930, yellow fever caused (<https://www.ajtmh.org/view/journals/tpmd/s1-11/6/article-p365.xml>) 32 laboratory infections, killing five people.[19]

As the research into viruses continued, so did the infection rate amongst the researchers and the death toll of researchers and those inoculated against diseases rose. I do not doubt that the final outcome was to the good of mankind, but occasionally a “vaccine” would go spectacularly wrong.

## Polio

In the 1930s, 40s and 50s the infection that seemed to most frighten Western society was poliomyelitis. Perhaps it was because unlike with most infectious diseases, cleanliness did not seem to be a protection and exercising could be positively harmful. In fact polio struck those who were healthy and wealthy and was worse if the person was fit and active. Much effort was put into finding a vaccine and among the first to succeed was Dr Jonas Salk. There had been abortive attempts in the 1930s but the 1935 vaccination programme had actually killed people.

Salk was a meticulous researcher and his technique was excellent. Unfortunately this was not the case with all of the laboratories that prepared the vaccine for public use. In particular, the Cutter Laboratories failed to kill the virus and poliomyelitis was spread by their version of the Salk vaccine, paralysing and killing the recipients. Eventually the proper controls permitted the successful rollout of the killed vaccine. It was later replaced by an attenuated polio virus vaccine, which has nearly eliminated polio from the world. It will not, however, succeed in completely eliminating the disease, as the attenuated virus can revert to a wild form. Thus the final push may require the use, once again, of the killed virus polio vaccine.

The infection of laboratory workers with the microbes they were working on was so common that steps were introduced in the 1940s to prevent escape of the organisms. According to Wikipedia, the first prototype Class III (maximum containment) biosafety cabinet was fashioned in 1943 by Hubert Kaempf Jr., then a US Army soldier.[20] The regulations were enhanced and the escape of dangerous organisms decreased, but has never disappeared. This is clearly demonstrated in Table 1, which lists some, but by no means all, of the known lab leaks since the 1960s.

## Escapes from bioweapons facilities

Whilst all of the incidents in the table are of interest, some are more worrying than others. In 1971 and 1979 there were outbreaks of smallpox and anthrax in the Soviet Union, caused by escapes of weaponised smallpox and weaponised anthrax from their own bioweapons facilities. In 1977 it is believed that a laboratory somewhere on the border of China and Russia put the H1N1 virus back together and it escaped and caused at least two pandemics. SARS1, which erupted first in 2003, later escaped from laboratories six times, four of which were in China, plus Singapore and Taiwan.[21]

The more you look at the table, the more you wonder if there is any virus that has not at some time escaped from a laboratory. Laboratory workers have told me that it is common for technicians to become infected with the organisms they are working



with and their usual response in the past has been to take multivitamins and hydroxychloroquine.

Date	COUNTRY	Virus	Outcome
1966	Birmingham, England	Smallpox	72 cases, no deaths
1967	Germany and Serbia	Marburg Virus Disease	Simultaneous large outbreaks from laboratory work with Green Monkeys; fatality rate about 50%
1971	Soviet Union (Aral Sea)	Weaponised smallpox	Biowarfare field test: 10 cases, 3 deaths
1973	London UK	Smallpox	4 cases, 2 deaths
1977	Edge of Russia and China	H1N1 influenza	Put back together in a lab but escaped causing a pandemic, then returned in 2008/9 as Swine Flu
1978	Birmingham UK	Smallpox	The last person to die from smallpox, Janet Parker, worked on the level above a lab doing research on the virus. She had been vaccinated against smallpox in 1966 but contracted the disease and died
1979	Sverdlovsk, Soviet Union	Weaponised anthrax	Escape from Compound 19, a bioweapons facility; 100s infected, 60 dead
1995	Venezuela	Equine encephalitis	Major equine epizootic and epidemic
2003-2017	China	SARS 1	6 documented outbreaks from research labs, 4 of which were in China, plus Singapore and Taiwan. 13 infections, 1 death
2007	Pirbright, UK	Foot and mouth disease	2,160 animals culled to prevent further spread. (The Pirbright site had been the source of foot-and-mouth outbreaks before – in 1970 the virus escaped from the experimental area. Eighteen animals had to be destroyed)
2015	USA	Anthrax	US department of Defense accidentally shipped live anthrax to nine US States and to a US military base in South Korea

Table 1: Some serious leaks of viruses from laboratories[22]

## The recent history of gain-of-function studies

Since 2010, GoF studies have increasingly focused on finding out whether non-pathogenic strains of viruses could be made infective and harmful to human beings.[23] This was supposedly in order to know whether or not the microbe was likely to be hazardous to human beings and then, if it was, devise vaccines and drugs against it.

In my opinion, such work simply increases the sum total of different pathogens that can affect human beings. When medical doctors are made aware of this type of research, they are usually speechless at the stupidity that anybody would contemplate doing such work. I now call such studies Make Another Disease (MAD) research.

This type of MAD research dramatically increased in laboratories in the USA between 2012 and 2014. The resulting accidents in which small outbreaks of novel viral diseases occurred led to three hundred scientists writing to the Obama administration asking for GoF to be stopped. The US Government responded by announcing a pause on the research in 2014 because of the inherent dangers.[24]

In the same year Dr Fauci, whose recorded belief was that the studies were worth the risk,[25] gave money from the NIH to Dr Daszak of Ecohealth Alliance to continue GoF research on coronaviruses.[26] This was carried out at the Wuhan Institute of Virology using genetically engineered humanized mice, culminating in reports in 2017 and 2018 that the researchers had successfully made harmless coronaviruses pathogenic to humans.[27]

In the autumn of 2019 the Covid-19 pandemic of SARS-2 started in Wuhan and, to date, over five million people across the world have died from the virus.

## Are pandemics ever zoonotic?

In addition to stating erroneously that viruses only rarely escape from laboratories

and/or that SARS-Cov-2 was unlikely to have done so, Drs Daszak and Fauci hold that most pandemics are zoonotic in origin. They say that pandemics start from a disease spreading from an animal but they do not state the time period involved. I would suggest that pandemics never occur from the immediate spread from an animal. In order for a pandemic to occur, a reservoir of the infection, adapted to human beings, must develop. This usually takes many years. Moreover the spread usually occurs due to the unnaturally large movement of people that occurs due to wars and famines.

I will give just a couple of well known examples.

When the Europeans invaded the Americas, 90% or more of the indigenous people of America died from the introduced diseases, which included measles, smallpox and mumps. In return, syphilis spread to Europe. Yes, the diseases had all arisen from animals initially, but the adaptation to make them pathogenic enough to cause a pandemic must have occurred over a period of the several thousand years during which the populations of Europe and America were separated.

AIDS was discovered in the early 1980s and it was soon clear that the Human Immunodeficiency Virus had arisen from the Simian Immunodeficiency Virus. However, studies have concluded that the first transmission of SIV to HIV in humans took place around 1920 in Kinshasa in the Democratic Republic of Congo (DR Congo), [28] so that it had at least 40-50 years of sporadic infection of human beings before it started to spread round the world as a pandemic. During that time there were many local wars in Africa and, of course, the 2nd World War.

In my book PANDEMIC, I document the world's worst pandemics and conclude that it is only malaria that seems to be indifferent to wars, killing people whether or not there are hostilities. All other historical pandemics have at least some connection with war and occur when isolated groups with an endemic disease meet another group without the disease.

## Conclusion

Thus historically we come to an impasse with SARS-CoV-2. This arose in a city many miles away from an animal population that might have harboured a similar virus, at a time when the supposed original host was dormant (late autumn), near a laboratory known to be working on the viruses. It then spread from person to person at an alarming rate and was seen to be totally adapted to human beings, to the extent that it was unable to even infect the bat it was supposed to have arisen from.

As a person who has studied the history of pandemics and lab leaks, imagine my surprise when authorities, not only in China but also in the USA and UK, stated categorically that the virus was obviously zoonotic and we were conspiracy theorists if we proposed the opposite. I had to conclude that they were misguided or purposely lying.

## References

1. Matthews J (2021). WHO investigation descends into farce in rush to rule out a lab leak. GMWatch. 10 Feb. <https://www.gmwatch.org/en/news/archive/2021-articles2/19691> (/en/news/archive/2021-articles2/19691)
2. Morse SS et al (2012). Prediction and prevention of the next pandemic zoonosis. The Lancet 1-7 Dec; 380(9857):1956-1965. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3712877/> (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3712877/>)
3. Matthews J (2020). Why are the lab escape denialists telling such brazen lies? GMWatch. 17 Jun. <https://gmwatch.org/en/news/archive/2020-articles/19437> (/en/news/archive/2020-articles/19437)
4. Morens DM, Fauci AS (2020). Emerging pandemic diseases: How we got to COVID-19. Cell 182. 3 Dec. [https://www.cell.com/cell/pdf/S0092-8674\(20\)31012-6.pdf](https://www.cell.com/cell/pdf/S0092-8674(20)31012-6.pdf) ([https://www.cell.com/cell/pdf/S0092-8674\(20\)31012-6.pdf](https://www.cell.com/cell/pdf/S0092-8674(20)31012-6.pdf))
5. Chaffetz J (2022). Fauci, Feds tried to quash COVID lab leak origin theory - protecting Chinese interests over American lives. Fox News. 27 Jan. <https://www.foxnews.com/opinion/fauci-covid-lab-leak-origin-theory-china-jason-chaffetz> (<https://www.foxnews.com/opinion/fauci-covid-lab-leak-origin-theory->

china-jason-chaffetz)

6. Wade N (2022). Emails reveal scientists suspected COVID leaked from Wuhan lab - then quickly censored themselves. New York Post. 17 Feb. <https://nypost.com/2022/01/24/emails-reveal-suspected-covid-leaked-from-a-wuhan-lab-then-censored-themselves/> (<https://nypost.com/2022/01/24/emails-reveal-suspected-covid-leaked-from-a-wuhan-lab-then-censored-themselves/>)
7. Carlson J, Mahncke H (2021). Behind the scenes of the natural origin narrative. Epoch Times. 30 Sep. [https://www.theepochtimes.com/behind-the-scenes-of-the-natural-origin-narrative\\_4023181.html](https://www.theepochtimes.com/behind-the-scenes-of-the-natural-origin-narrative_4023181.html) ([https://www.theepochtimes.com/behind-the-scenes-of-the-natural-origin-narrative\\_4023181.html](https://www.theepochtimes.com/behind-the-scenes-of-the-natural-origin-narrative_4023181.html))
8. Wade N (2022). As above.
9. Andersen KG et al (2020). The proximal origin of SARS-CoV-2. Nature Medicine 26:450-452. 17 Mar. <https://www.nature.com/articles/s41591-020-0820-9> (<https://www.nature.com/articles/s41591-020-0820-9>)
10. Wade N (2022). As above.
11. Wade N (2022). As above.
12. Lerner S, Hvistendahl M, Hibbett M (2021). NIH documents provide new evidence US funded gain-of-function research in Wuhan. The Intercept. 10 Sep. <https://theintercept.com/2021/09/09/covid-origins-gain-of-function-research/> (<https://theintercept.com/2021/09/09/covid-origins-gain-of-function-research/>)
13. Board on Life Sciences et al (2015). Gain-of-function research: Background and alternatives. In: Potential Risks and Benefits of Gain-of-Function Research: Summary of a Workshop. National Academies Press (US). Apr 13. <https://www.ncbi.nlm.nih.gov/books/NBK285579/> (<https://www.ncbi.nlm.nih.gov/books/NBK285579/>)
14. Williams G (1959). Virus Hunters. Knopf.
15. Goddard PR (2020). PANDEMIC: Plagues, Pestilence and War: A Personalised History. Clinical Press. <https://www.amazon.co.uk/PANDEMIC-Paul-Goddard-MD-FRCR/dp/1854570994> (<https://www.amazon.co.uk/PANDEMIC-Paul-Goddard-MD-FRCR/dp/1854570994>)
16. Williams G (1959). Virus Hunters. As above.
17. Feng P (undated). Yellow fever. National Museum of the United States Army. <https://armyhistory.org/major-walter-reed-and-the-eradication-of-yellow-fever/> (<https://armyhistory.org/major-walter-reed-and-the-eradication-of-yellow-fever/>)

18. College of Physicians of Philadelphia (undated). Jesse Lazear.

<https://www.historyofvaccines.org/content/jesse-lazear>

(<https://www.historyofvaccines.org/content/jesse-lazear>)

19. Berry GP and Kitchen SF (1931). Yellow fever accidentally contracted in the laboratory: A study of seven cases. The American Journal of Tropical Medicine and Hygiene s1-11(6):365-434. <https://www.ajtmh.org/view/journals/tpmd/s1-11/6/article-p365.xml> (<https://www.ajtmh.org/view/journals/tpmd/s1-11/6/article-p365.xml>)

20. Wikipedia (undated). Biosafety level. [https://en.wikipedia.org/wiki/Biosafety\\_level#:~:text=The%20first%20prototype%20Class%20III,Laboratories%2C%20Camp%20Detrick%2C%20Maryland](https://en.wikipedia.org/wiki/Biosafety_level#:~:text=The%20first%20prototype%20Class%20III,Laboratories%2C%20Camp%20Detrick%2C%20Maryland) ([https://en.wikipedia.org/wiki/Biosafety\\_level#:~:text=The%20first%20prototype%20Class%20III,Laboratories%2C%20Camp%20Detrick%2C%20Maryland](https://en.wikipedia.org/wiki/Biosafety_level#:~:text=The%20first%20prototype%20Class%20III,Laboratories%2C%20Camp%20Detrick%2C%20Maryland)).

21. Mihm S (2021). The history of lab leaks has lots of entries. Bloomberg. 27 May. <https://www.bloomberg.com/opinion/articles/2021-05-27/covid-19-and-lab-leak-history-smallpox-h1n1-sars> (<https://www.bloomberg.com/opinion/articles/2021-05-27/covid-19-and-lab-leak-history-smallpox-h1n1-sars>)

22. Sources:

\* 1967 <https://www.who.int/news-room/fact-sheets/detail/marburg-virus-disease>

(<https://www.who.int/news-room/fact-sheets/detail/marburg-virus-disease>)

\* 1966 and 1978 [https://en.wikipedia.org/wiki/1978\\_smallpox\\_outbreak\\_in\\_the\\_United\\_Kingdom](https://en.wikipedia.org/wiki/1978_smallpox_outbreak_in_the_United_Kingdom)

([https://en.wikipedia.org/wiki/1978\\_smallpox\\_outbreak\\_in\\_the\\_United\\_Kingdom](https://en.wikipedia.org/wiki/1978_smallpox_outbreak_in_the_United_Kingdom))

\* 1971 Aral smallpox incident: [https://en.wikipedia.org/wiki/1971\\_Aral\\_smallpox\\_incident](https://en.wikipedia.org/wiki/1971_Aral_smallpox_incident);

1973 <https://api.parliament.uk/historic-hansard/written-answers/1973/apr/12/smallpox> ([https://en.wikipedia.org/wiki/1971\\_Aral\\_smallpox\\_incident](https://en.wikipedia.org/wiki/1971_Aral_smallpox_incident);

1973 <https://api.parliament.uk/historic-hansard/written-answers/1973/apr/12/smallpox>)

\* 1977, 1979 The history of lab leaks has lots of entries: <https://www.bloomberg.com/opinion/articles/2021-05-27/covid-19-and-lab-leak-history-smallpox-h1n1-sars>

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(<https://www.bloomberg.com/opinion/articles/2021-05-27/covid-19-and-lab-leak-history-smallpox-h1n1-sars>)

\* 2003-2017 Breaches of safety regulations are probable cause of recent SARS

outbreak, WHO says BMJ. 2004 May 22; 328(7450): 1222 and The Origin of the Virus (Clinical Press, Bristol) 2021;

\* 2007 [https://en.wikipedia.org/wiki/2007\\_United\\_Kingdom\\_foot-and-mouth\\_outbreak](https://en.wikipedia.org/wiki/2007_United_Kingdom_foot-and-mouth_outbreak) ([https://en.wikipedia.org/wiki/2007\\_United\\_Kingdom\\_foot-and-mouth\\_outbreak](https://en.wikipedia.org/wiki/2007_United_Kingdom_foot-and-mouth_outbreak))

\* 2015 US military accidentally ships live anthrax to labs. <https://doi.org/10.1038/nature.2015.17653> (<https://doi.org/10.1038/nature.2015.17653>)

23. Herfst S et al (2012). Airborne transmission of influenza A/H5N1 virus between ferrets. Science 336(6088):1534-41. <https://pubmed.ncbi.nlm.nih.gov/22723413/> (<https://pubmed.ncbi.nlm.nih.gov/22723413/>)

24. The White House (2014). Doing diligence to assess the risks and benefits of life sciences gain-of-function research. 17 Oct. <https://obamawhitehouse.archives.gov/blog/2014/10/17/doing-diligence-assess-risks-and-benefits-life-sciences-gain-function-research> (<https://obamawhitehouse.archives.gov/blog/2014/10/17/doing-diligence-assess-risks-and-benefits-life-sciences-gain-function-research>)

25. Fonrouge G (2021). Fauci once argued for risky viral experiments - even if they can lead to pandemic. New York Post. 28 May. <https://nypost.com/2021/05/28/fauci-once-argued-viral-experiments-worth-the-risk-of-pandemic/> (<https://nypost.com/2021/05/28/fauci-once-argued-viral-experiments-worth-the-risk-of-pandemic/>) ;

Barnard P, Quay S, Dalglish A (2021). The Origin of the Virus. Clinical Press.

26. NIH (2014). Understanding the Risk of Bat Coronavirus Emergence. Project Number 1R01AI110964-01. <https://reporter.nih.gov/search/-bvPCvB7zkyvb1AjAgW5Yg/project-details/8674931> (<https://reporter.nih.gov/search/-bvPCvB7zkyvb1AjAgW5Yg/project-details/8674931>)

27. Barnard P, Quay S, Dalglish A (2021). The Origin of the Virus. Clinical Press.

28. Avert (2019). Origin of HIV and AIDS. <https://www.avert.org/professionals/history-hiv-aids/origin> (<https://www.avert.org/professionals/history-hiv-aids/origin>)

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*Pestilence and War, Clinical Press Ltd, August 2020, and PANDEMIC, 2nd Edition 2021, Clinical Press, Bristol, available from Gazelle Book Services Ltd and good bookshops, ISBN 978-1-85-457105-2. On a similar theme, see The Origin of the Virus, Clinical Press 2021.*

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