



## Lessons Learned from COVID-19 and Protecting Worker Health and Rights

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## Objectives

### Lessons Learned for COVID-19

1. History of the Virus
2. World Cases and US Cases
3. How is Los Alamos National Lab Involved

### Protecting Workers Rights

1. At Risk Workers
2. Employee Protections
3. Worker Protections and Emergency Technical Standards

## History of COVID - 19

- Where did this first come from?
  - Gained notoriety late December 2019
  - Wuhan China – Pneumonia of Unknown Cause
    - Wet Market, seafood or another vector?
- Initially there was not much testing available
  - Check for temperature and symptoms
  - Chest X Rays to determine infection
- SARS-CoV-2 genome sequenced – January 2020
  - Dubbed COVID-19
  - Led to advances enabling testing capabilities and vaccine research
- Tracking and modeling provided an  $R_0$  number of 3 and greater

### 1. Chinese authorities treated dozens of cases of pneumonia of unknown cause.

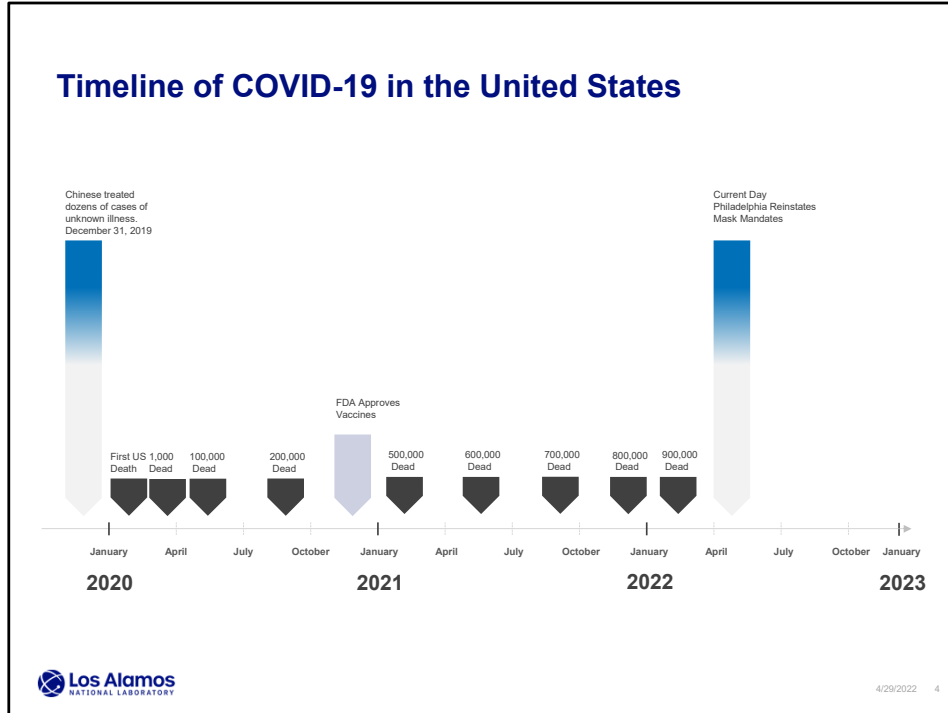
On Dec. 31, the government in [Wuhan](#), China, confirmed that health authorities were treating dozens of cases (New York Times,)

2. By creating checkpoints outside train stations and travel routes from WUHAN numbers of infected were able to be estimated to increase the modeling for dispersion

3. The virus had [79.0% sequence identity to SARS-CoV](#), (severe acute respiratory syndrome) and even higher sequence identity of 86.7%-89% with SARS-like coronaviruses originating in bats

4. This R number is an estimate from modeling suggesting for every infection 3 people could be infected. For comparison – the R number for the flu is 1.1 or 1.2 and the R number for measles is R15....

## Timeline of COVID-19 in the United States



1. December 2019 Sickness Emerges in WUHAN
2. First US Case documented - Jan 20 in Washington State
3. Feb 6 and Feb 11 first recorded deaths in US
4. Feb 11 The WHO gave the disease a name – Severe Acute Respiratory Syndrome – Coronavirus 2.
5. March 26 The united States led the world in confirmed cases. The United States officially became the country [hardest hit by the pandemic](#), with at least 81,321 confirmed infections and more than 1,000 deaths. This was more reported cases than in China, Italy or any other country at the time
6. April 2 – mass lay offs, furloughs etc. took nearly 10 million Americans out of work. There were over 6.6 million unemployment benefits filed last week of March. This was worse than 1982 (695,000)
7. May 27 – deaths passed 100,000
8. July 13 – More than 5 million Americans lost health insurance (between Feb. and May)
9. August 11 – Big Ten and Pac-12 suspend football for the Fall, Universities moved classes online and Global Virus Deaths passed 800,000
10. September 22 – US death toll passed 200,00 and Even president Trump tested positive in October 2020
11. December 11 – FDA approved Pfizer vaccine and by this time more than 290,000 lives had been lost in the US alone. FDA Approved the Moderna Vaccine Dec 18. and Johnson and Johnson February 27, 2021.
12. Feb 21 – US death toll surpasses 500,000
13. June 1 2021 Delta Variant kicks off 3<sup>rd</sup> wave of infection in US. According to figures [published by the CDC, the more contagious Delta variant would account for an estimated 93.4% of coronavirus circulating in the United States during the last two weeks of July.](#)
14. June 16, death toll tops 600k
15. September 30 death toll tops 700k
16. October 7 2021 – CDC study in *Pediatrics* reveals 140,000 US children under the age of 18 lost a parent, or grandparent who provided care for the child
17. November 26, 2021 – Omicron Variant Emerges
18. December, 15 – death toll tops 800k

19. February 3 – death toll tops 900k
20. Feb 17, 2022 Gov. Lujan Grisham lifts Mask Mandate for New Mexico
21. April 11, 2022 Philadelphia reinstates indoor mask mandates as COVID Cases Rise due to new Omicron 2 Variant
22. April 19, 2022 TSA drops mask mandate for trains plane and automobiles for mass transit due to a court ruling

Information gathered from: The New York Times: *A timeline of the coronavirus pandemic* and The CDC Museum: *Covid-19 Timeline*

<https://www.nytimes.com/article/coronavirus-timeline.html>  
<https://www.cdc.gov/museum/timeline/covid19.html>

## World Cases and Proliferation

- Current Estimate of Infection, Death, and Vaccination (US only)



Cases Overview: From Our World Data and New York Times, April 10, 2022

<https://covid.cdc.gov/covid-data-tracker/#datatracker-home>

As of April 10, 2022 when I gathered this information, the United States was at almost 1 million deaths. World Wide the death toll was over 6 million.

In the US, around 82% of americans 5 and up had at least one dose of vaccine.

John Hopkins University puts the total number of Fully Vaccinated Americans at 193 million (59%) of the population

## How is Los Alamos National Lab Involved?

- One of our missions for the Lab is to protect National Security. That includes infections diseases such as COVID-19.
  - Human Genome Project
  - GenBank
  - Coexisting with COVID-19 through Disease forecasting and science
  - Using Chicoma for modeling, forecasting and analytics
    - [www.discovery.lanl.gov/new/0315-chicoma-supercomputer](http://www.discovery.lanl.gov/new/0315-chicoma-supercomputer)
    - Among the earliest deployments of HPE Cray EX supercomputer architecture

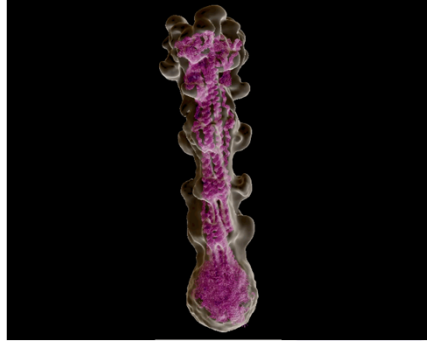


[www.discovery.lanl.gov/new/0315-chicoma-supercomputer](http://www.discovery.lanl.gov/new/0315-chicoma-supercomputer)

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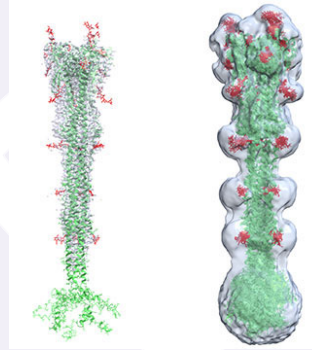
1. As Scientists learned more and more about Radiation, they began seeing the effects it had on the body. Biologists started working to keep workers safe, set thresholds and run studies. This brought about a robust environment for biological research at Los Alamos. Such as, creating radio isotopes for medical sciences, studying and helping to map the Human Genome, and operation of Gen Bank at Los Alamos. Speaking of Gen Bank, which is the National Institute of Health's publicly accessible genetic sequence database, Los Alamos scientists launched analytics website available to the world such as the case data forecasting website and the COVID-19 Genomic Analytics Website. Los Alamos Scientists developed simulations and modeling, using information gathered at the beginning of the COVID outbreak, and through a supercomputer for internal and external researchers began modeling on how contagious or how fast the virus would spread, what the impact of vaccination on eradicating the virus could be, understanding threats from the new strains of the virus and how to forecast the number of new infections and use that information to inform policy makers for decisions on our national health.
2. Coexisting
  1. Besides modeling using the Supercomputer Chicoma, for the last year scientists have been able to develop 3 dimensional models SARS-COV-2 and the spike protein. This allows them to develop further vaccine design by viewing how the virus uses the spike protein and how it will interact to new vaccine designs. These approaches to vaccine design could help protect in the future against a range of coronavirus – and possibly help develop vaccines for other diseases such as HIV.

## How is Los Alamos National Lab Involved?



Molecular simulations of the COVID-19 spike protein enable some of the first visualizations of the region of spike that anchors to human host cells (fusion region). Multiple poses of the spike protein (purple) are superposed, illustrating the dynamic nature of the fusion region (bulb shaped region towards bottom), overlaid with experimental data determined from cryogenic electron microscopy (brown). LA-UR-22-20530

Molecular simulations of the coronavirus spike protein enable the first visualizations of the region of the spike that anchors to human host cells (called the fusion region). Multiple angled views of the spike protein (green) are superimposed, illustrating the dynamic nature of the fusion region (bulb shaped region towards bottom), overlaid with experimental data determined from cryogenic electron microscopy (shown in cyan). Red sections are glycan molecules.



<https://discover.lanl.gov/news/0307-atomistic-imagery>

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<https://discover.lanl.gov/news/0307-atomistic-imagery>

The Spike protein ability for fast growth and mutation shows a fitness advantage that can increase the virus transmission.

Thousands of variants have been identified, but most have not had an impact and spread through populations.

Los Alamos Frontiers of Science – video



## Worker Protections – At Risk Workers

- Immune Compromised Individuals
- Unvaccinated Workers
- Frontline Workers
  - Health Care
  - Teachers and Childcare providers
  - Grocery Store Workers
  - Firefighters, Police Persons, First Responders
- High density job workers
  - Assembly line and manufacturing
  - High density transport to and from work
- Marginalized Workforce
  - May not work enough hours to qualify for benefits
  - Sometimes Overlooked, but VERY necessary

Immune Compromised workers:

- \* people who may have health conditions or weakened immune systems.

- \* Workers in this category could file for worker accommodations to keep them safe under the Americans with Disabilities Act.

- \* The Employer cannot stop you from working all together because of the need for an accommodation.

The Employee should discuss reasonable accommodations with the employer to keep his or herself safe and it could be helpful to consult the Job Accommodation network ([AskJan.org](http://AskJan.org)) to determine the types of accommodations necessary.

Unvaccinated Workers – pose a risk to themselves by being vulnerable as transmission continues.

Frontline workers or Essential Workers

- \*A study titled “Dirty work during COVID-19: The Double-whammy effect states - In the current pandemic, the notion of essential work has received enormous attention. A job is defined as essential if it is vital for promoting a populations’ health and welfare, and so it must be maintained, even in a disaster (e.g., Blau etal., [Reference Blau, Koebe and Meyerhofer2020](#))

- \* Health Affairs.org suggests that 50- million US workers are frontline and cannot stay at home to work.

- \* These are people who’s daily job is a necessity for the general public and health of the nation

High Density Job Workers:

- \* When there is a higher density of people in an area the risk of infection goes up

- \* Assembly line and manufacturing work indoors in close quarters with other employees

- \* Riding on transport to and from work such as busses to a job site

Marginalized Workforce

- \*women, people of color, low-income workers

- \*These are workers who may be working a low income or low hour job that is really a necessity. They may

not work enough hours to qualify for unemployment benefits or health benefits or sick leave.

\*Some immigrant workers may refuse to seek medical help if they are applying for legal status. If they have used public benefits. If they had they could be viewed as a public charge and then be inadmissible to the United States.

\*Many of these jobs are referred to as "Dirty Work" folks who come to disinfect and clean or take out garbage and handle wastes in hospitals... Someone must do it and many times they are temporary contract workers with no benefits. and faced job insecurity as the pandemic raged on

\*Not everyone can perform their jobs from home

\*To protect these workers in the future they should be afforded more resources at the macro level (such as public policies, social equality)

## Suggested Protections for Employees

- Multiple Layers of Control
  - Vaccination and Boosters
  - Face Masks
  - Distancing
  - Ventilation
  - Increased Sterilization and Cleaning
  - Administrative
    - Staggered work schedule
    - Contact Tracing
    - Quarantine



### CLEANING AND DISINFECTING

Best Practices During the COVID-19 Pandemic

| Good Idea  | Be Careful   | Don't Do It   |
|--|--|---|
| <p><b>Follow CDC, State, and Local Public Health Guidelines</b></p> <p>According to the Centers for Disease Control and Prevention (CDC), COVID-19 is mainly spread through the air. The risk of getting the virus by touching a contaminated surface is thought to be low.</p>              | <p><b>Be Careful Using Disinfectants Around People with Asthma</b></p> <p>Disinfectants can trigger an asthma attack. If you have asthma, you may need to take extra precautions like avoiding areas where people are cleaning and disinfecting or making sure the space is well ventilated.</p>   | <p><b>Don't Ask Children or Students to Apply Disinfectants</b></p> <p>Disinfectants are powerful tools for controlling the spread of disease, and they can harm kid's health if used or stored incorrectly. Children and students should not apply disinfectants, and they should be kept out of children's reach.</p>                                     |
| <p><b>Clean Surfaces with Soap and Water</b></p> <p>Normal routine cleaning with soap and water lowers the risk of spreading COVID-19 by removing germs and dirt from surfaces. In most situations, cleaning is enough to reduce risk.</p>   | <p><b>Be Careful with Fogging, Fumigating, and Wide-Area or Electrostatic Spraying</b></p> <p>Make sure your product's label includes directions for the application method. Follow all directions including precautions. If a product isn't labeled for these application methods, using it that way might be risky or ineffective.</p> | <p><b>Don't Ignore the Label Directions</b></p> <p>If you don't follow the label directions, disinfectant products may be ineffective or unsafe. Do not apply disinfectants to skin, pets or food. Do not dilute disinfectants or mix them with other chemicals unless the label tells you to. Don't think that twice the amount will do twice the job.</p> |
| <p><b>Use EPA-Registered Disinfectants According to Label Directions</b></p> <p>Disinfectants further lower the risk of spreading COVID-19 by using chemicals to kill germs. Use disinfectants on high-touch surfaces when you know or suspect someone around you is sick with COVID-19.</p> | <p><b>Be Careful With UV Lights or Ozone Generators</b></p> <p>UV lights or ozone generators may be risky or ineffective. EPA cannot verify if or when it is appropriate to use these devices. Check out the guidance at: <a href="https://go.usa.gov/x16c9a">go.usa.gov/x16c9a</a>.</p>   | <p><b>Don't Use Unregistered Disinfectants</b></p> <p>If a product says that it kills SARS-CoV-2 (COVID-19), but it doesn't have an EPA registration number, it may not be safe or effective. Federal law requires disinfectants to be registered with EPA.</p>   |

For CDC public health guidelines, visit: [go.usa.gov/x16c9a](https://go.usa.gov/x16c9a)  
 For information on disinfectants, visit: [go.usa.gov/x16c9a](https://go.usa.gov/x16c9a)

April 2021

1. Vaccination and Boosters
  1. This is still suggested as one of the best ways for workers to protect themselves from COVID. There has been much controversy regarding requirements etc.
2. Face Masks – CDC guidance suggests a face mask made of cotton like material, non see through, dual layered or a surgical mask or N95 type respirator.
  1. They do not suggest using traditional respirators with valves that let your personal air flow out
  2. If an employee wears a respirator such as an N95, they should be filling out the voluntary use form in 1910.134 for respiratory protection
  3. Employers, when requiring face coverings to be used, should have the ability to provide them to workers, but this is not a requirement in all circumstances
3. Distancing – CDC began with social distancing suggestions of 6 feet apart.
  1. At Los Alamos we were able to create policy with the number of employees allowed in a space, or the number of employees allowed to ride in a car with one another.
4. Ventilation – As COVID 19 has progressed indoor ventilation has become a big issue. Employers or building operators should follow 3 main techniques: 1. Bring lots of Fresh Air In 2. Filter the air, especially any return air (using MERV 13 or higher) use portable HEPA filtration units if possible and 3. Increase the Air flow
5. Increase Sterilization and Cleaning – As science with the virus has progressed cleaning methods have progressed as well. If we think back to the beginning of the outbreak the only thing harder to get than toilet paper was cleaning supplies. Keeping work areas and common areas sterilized and clean is a necessity. The CDC suggests routine cleaning and when necessary, use a disinfectant from the EPA List N that is effective against COVID-19.
6. Administrative Techniques such as
  1. Staggered Schedules

2. Contact Tracing
3. Requiring COVID safe Checklists and temperatures be filled out before a worker comes on sites  
When coupled with the other layers of control will help protect workers from possible infection.

## Worker Protections and Emergency Technical Standards

- General Duty Clause
  - The General Duty Clause, [Section 5\(a\)\(1\)](#) of the [Occupational Safety and Health \(OSH\) Act of 1970](#), 29 USC 654(a)(1), which requires employers to furnish to each worker "employment and a place of employment, which are free from recognized hazards that are causing or are likely to cause death or serious physical harm."
    - Section 11(c) – prohibition against retaliation
    - National Emphasis Program (NEP)
- The Department of Labor offers/(ed) many resources during the Corona Virus Pandemic
  - Families First Coronavirus Response Act
  - Fair Labor Standards Act
- Healthcare ETS
- Private Industry ETS

Under Federal Law – The General Duty Clause – you are entitled to a safe workplace. Your employer must provide a safe and healthful workplace.

Do you have the right to refuse to come to work because you are afraid of infection. No, not exactly. By this point the employer should have a policy for how the workplace is handling Corona Virus and the employees should have received training over that policy. If there is a health and safety issue at work the employee can raise concern and if necessary, report the problem without fear of retaliation.

(NEP) ensures that employees in high-hazard industries are protected from the hazard of contracting SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2), the cause of COVID-19. The NEP targeted establishments that had workers with increased potential exposure to this hazard. In addition, this NEP includes an added focus to ensure that workers are protected from retaliation.

DOL

1. families First CRA – December 31 2020 ended, but gave paid sick leave for quarantine etc.
2. Fair Labor Standards Act – discusses unemployment insurance benefits for events caused by Corona Virus (workplace closure for non salaried persons), What tasks your employer should be paying you for etc.

## Worker Protections and Emergency Technical Standards

- Healthcare ETS
  - 29 CFR 1910.502
  - Effective June 21, 2021 – Expired January 22, 2022
  - OSHA still suggesting Employers in Healthcare continue to follow the ETS governance under the General Duty Clause
  - The only parts still in effect are the Reporting and Record Keeping
  - OSHA is preparing to promulgate a final standard, with public comment underway
- Vaccination and Testing ETS
  - Effective November 21, 2021 - Withdrawn January 22, 2022
    - SCOTUS Stayed ETS
  - Private sector 100 employees or greater
  - Secretary Walsh stated that "...OSHA will do everything in its existing authority to hold businesses accountable for protecting workers, including under the COVID-19 National Emphasis Program and the General Duty Clause." – National Law Review

Healthcare ETS applies, with some exceptions, to settings where any employee provides healthcare services or healthcare support services.

1. Develop a Plan
2. Patient Screening and Management at points of entry
3. Standard and Transmission-Based Precautions
4. PPE and advanced PPE
5. Limit employees present during Aerosol-generating procedures on COVID + Patients
6. Physical Distancing
7. Physical Barriers
8. Cleaning and disinfection
9. Ventilation
10. Health screening and medical management – such as self monitoring and notifications to employer
11. Vaccination
12. Training
13. Anti Retaliation
14. Requirements implemented at no cost to employees
15. Reporting COVID-19 Fatalities and hospitalizations to OSHA (work related)
16. Mini Respiratory protection program (29 CFR 1910.504)

### Testing and Vaccination ETS

In reaching its decision, the Supreme Court explained that OSHA does not have the authority to issue a mandate that has such broad impact and significance. It expressed concern that OSHA had ordered 84 million Americans to either obtain a

COVID-19 vaccine or undergo weekly medical testing at their own expense, which is not an everyday exercise of its federal power. The Supreme Court identified that the OSHA ETS was a significant encroachment into the lives—and health—of a vast number of employees and that Congress had not spoken clearly to authorize OSHA to exercise such vast powers of economic and political significance. The Supreme Court also noted that the Occupational Safety and Health (“OSH”) Act only gave OSHA the authority to implement workplace safety standards and did not grant OSHA the authority to implement broad public health measures, such as the vaccination and testing requirements reflected in the ETS.

## Lessons Learned after Living with COVID-19

- While the pandemic was touted as an “Equalizer” between rich and poor the reality is serious inequality still exists in US Employment
- Employers and Employees know that many jobs can be done from home
- Communication and a focus on Employee Wellness is key
- Globally, the Earth’s Environment benefitted from reduced travel
- Burnout at work is a real occurrence that many Frontline Workers experience
- Training, Procedures, Flexibly and Safety must be in the forefront of Employers to ensure Employees can work safely
- Kindness and Compassion are paramount to understanding the needs of Employees



## What are your RIGHTS as a worker?

- Employees SHOULD be able to:
  - work in a safe and healthful environment
  - request reasonable accommodations
  - receive training on Employer policies and ensure understanding
  - receive pay in accordance with the FLSA for Corona Virus related tasks
  - be provided, when necessary and required, appropriate PPE to safely complete tasks, especially specialized tasks
  - opt out of vaccination for reasons such as religion or medical conditions
  - choose to wear a mask and social distance at work if not required by policy

FLSA = fair labor and standards act

**QUESTIONS or TOPICS for further discussion?**

