

Corona Virus Bullet Points

The virus is airborne, and infected someone without PPE (Personal Protective Equipment) from 20 feet away, outside the Diamond Princess Cruise Ship. It's also highly contagious. Patient #5 in China was infected after standing next to patient #2 in a grocery store, for 15 seconds. It can infect through exposed eyes. Goggles or other eye protection are a must. Patients are infectious before presenting with symptoms, during the incubation period. Incubation period may last as long as 4 weeks. 20-25% of those infected require intensive care, usually with artificial respiration. If the health system is overwhelmed, and unable to provide artificial respiration to all such patients, Mortality could increase dramatically, up to that number. Artificial respirators are presently very limited in number.

Mortality estimates range from 1-3.8% globally. There are two strains already so it is mutating fast. The new strain is already more lethal and more transmissible, and it is likely the seed strain in many new outbreaks outside Chinese borders. It is expected this strain will have a much higher mortality, with the initial strain causing a more mild illness, and reducing the overall mortality number. The 1918 flu was mild for the first year and a half. It was only in the second year it mutated into a new strain that produced the lethal pandemic of 1918.

Based on an analysis of how it infects biologically, and human genetics, there has been speculation it will hit smokers, Asians, males, and the elderly harder than others, but evidence so far shows it is not so predictable, perhaps based upon strain variance. One victim who died was a 23 year old Iranian Caucasian female who played soccer and did not smoke.

It is believed, based on observations of other Corona viruses, to be able to survive and maintain infectivity on surfaces for 9 days minimum, and possibly up to 28 days. It can be killed by 60 seconds exposure to 70% alcohol, dilute bleach, or hydrogen peroxide. Only alcohol would not bleach uniforms.

Moderate PPE is not a guarantee against protection. Several health workers in PPE at the Diamond Princess were infected, despite the use of paper N95 masks (without latex seals), medical goggles, gloves, splash protection, and full Tyvek body suits.

Proper protective gear consists of minimum N95 air filtration, or optimum P100 air filtration, through a mask with a latex face seal, plus a full body Tyvek suit with hood, gloves, and booties to avoid treading viral particles. All must be cleaned with sterilant before being removed and stored or disposed of.

Gear is cheap, readily available, and easily employed as described herein.

This would mean they require artificial respiration on an artificial respirator – something which will be in limited supply at the peak of a pandemic. From: <http://archive.is/rvNNp>

HEALTH AND SCIENCE

NIH doctor says 25% of coronavirus cases in China are ‘very serious,’ requiring ‘intensive care’

PUBLISHED MON, FEB 3 2020·12:14 PM EST | UPDATED MON, FEB 3 2020·3:58 PM EST



Jessica Bursztynsky
@JBURSZ

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KEY POINTS

- “About 25% of them have very serious disease, requiring relatively intensive or really intensive care,” NIH’s Dr. Anthony Fauci told CNBC on Monday.
- China’s National Health Commission said the confirmed coronavirus cases in China increased to 17,205. The death toll rose to 361 there.
- “There are probably a lot more people who were infected in China who have not been really counted,” Fauci said. “The number is probably much larger.”

Reinfection possible, and can cause sudden heart attacks. From: <http://archive.is/Iw58p>



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Exclusive: Chinese doctors say Wuhan coronavirus reinfection even deadlier

Instead of creating immunity the virus can reportedly reinfect an individual and hasten fatal heart attack

 1050



By [Jules Quartly](#), Taiwan News, Contributing Writer
2020/02/14 15:02

Two strains, one mild, one aggressive and potentially lethal. Many of the more virulent outbreaks outside of China are the more virulent strain. From : <http://archive.is/WiKsp>

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TWO strains of the killer coronavirus are spreading around the world – and 70% of infected patients have caught the more aggressive and contagious type, study claims

- Researchers from Beijing and Shanghai studied 103 samples of the coronavirus
- They found two strains of it, named them L and S and found L was most common
- L is also the most aggressive, but it has become less common since early January
- A virus which is too aggressive may burn itself out by landing patients in hospital
- More than 94,000 people have now caught the coronavirus and 3,200 have died

Things are much worse than we are being told publicly. From : <http://archive.is/wUTzr>



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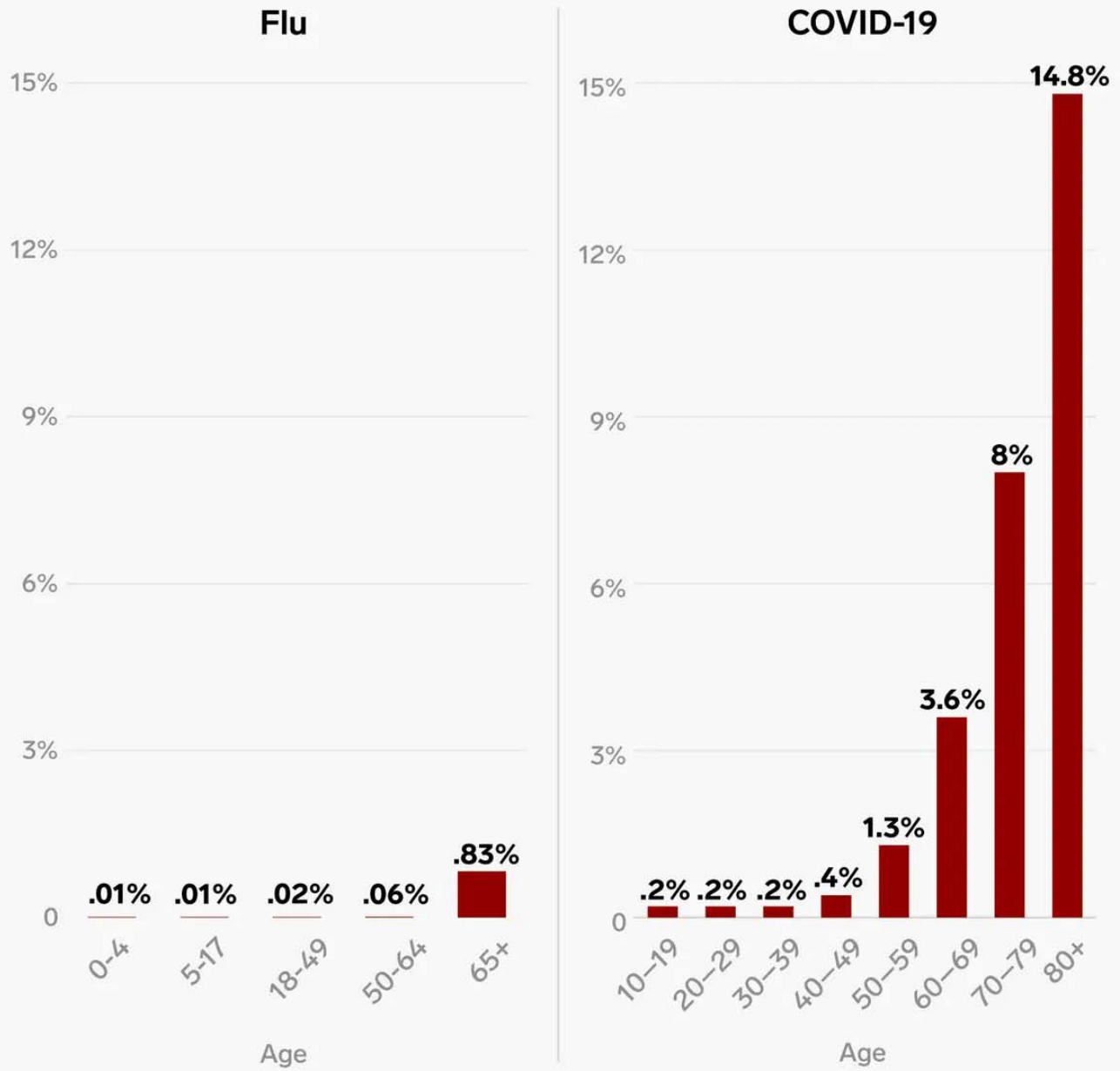


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One slide in a leaked presentation for US hospitals reveals that they're preparing for millions of hospitalizations as the outbreak unfolds

- The spread of the [coronavirus outbreak in the US](#) could push the healthcare system to its limits.
- In a February webinar presentation hosted by the American Hospital Association, an expert laid out "best guess" estimates about how many Americans could be impacted.
- He projected that there could be as many as 96 million cases in the US, 4.8 million hospitalizations, and 480,000 deaths associated with the novel coronavirus.

Flu vs COVID-19 death rate, by age



Source: Centers for Disease Control and Prevention (CDC), Chinese Center for Disease Control and Prevention

BUSINESS INSIDER

Portions of a Chinese article which was posted and then censored by the Chinese government, but which was archived here before being deleted show many cases are not being added to the statistics, with 115 out of 120 patients being sent home without being looked at.

<http://archive.is/4vj32>



<http://archive.is/ObawP>



Translate

From:

Chinese



To:

English



After the old man was taken to the ambulance, the family never saw her again. All they received was a cremation note, indicating that the cause of the death of the elderly was: viral pneumonia. **However, according to family members, the death of the elderly was not included in the number of confirmed deaths from new coronary pneumonia-because she did not qualify for hospitalization and was not diagnosed with new coronary pneumonia until her death. "The unfortunate one who died.**

A department director of a designated hospital told the Caijing reporter that there were about 120 fever patients a day in the outpatient clinic of these two days, about 80 of whom had lung infections, but only 5 of them might eventually be admitted to the hospital.

"We can only let the remaining 75 patients who can't get in and go home. The patients can't do it, neither can we. " The director told the Caijing reporter.

The director said that, in general, two-slice lung CT showed ground-glass lesions,

From: <http://archive.is/UvJeA>



MARKETS BUSINESS INVESTING TECH POLITICS CNBC TV

Researchers say the coronavirus may be more contagious than current data shows

PUBLISHED TUE, FEB 4 2020-3:06 PM EST | UPDATED WED, FEB 5 2020-2:32 AM EST



Berkeley Lovelace Jr.
@BERKELEYJR

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KEY POINTS

- The so-called R naught of the disease, a mathematical equation that shows how many people will get sick from each infected person, is around 2.2.
- World health officials caution that it may take months before the true R naught is known as more coronavirus cases come to light.
- China's health minister, Ma Xiaowei, recently told reporters there is evidence it's already mutated into a stronger variation that is able to spread more easily among humans.

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Patient caught virus after standing next to infected woman with no symptoms for 15 seconds:

<http://archive.is/ZPhrs>

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Thursday, Feb 6th 2020

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By [STEPHEN MATTHEWS HEALTH EDITOR FOR MAILONLINE](#) and [SAM BLANCHARD SENIOR HEALTH REPORTER FOR MAILONLINE](#) and [CONNOR BOYD HEALTH REPORTER FOR MAILONLINE](#)

PUBLISHED: 05:05 EST, 6 February 2020 | **UPDATED:** 11:06 EST, 6 February 2020

A Chinese man has caught the killer [coronavirus](#) within just 15 seconds of standing next to an infected woman at a market.

The unidentified 56-year-old, known only as 'patient five', stood close to 'patient two' – a 61-year-old carrier of the deadly SARS-like infection.

Jiangbei Health Commission, the man's local authority, revealed neither patient wore a face mask to protect themselves.

Officials have confirmed the man caught the virus – which has struck nearly 30,000 people worldwide – after his brief encounter with the infected woman.

Regular N95 facemasks and goggles do not offer complete protection in an infection environment,
From : <http://archive.is/pN6HK>

The New York Times

2 Former Cruise Ship Passengers With Virus Die in Japan

By The Associated Press

Feb. 19, 2020



TOKYO — Two elderly passengers taken off the quarantined cruise ship Diamond Princess because they were infected with the new virus have died, Japan's Health Ministry said Thursday, becoming the first fatalities from the virus-stricken vessel.

Japan now has three deaths linked to the COVID-19 illness.

The ministry also announced 13 more cases on the ship, bringing the total to 634, by far the largest number in one location outside mainland China.

The two fatalities, a man and woman in their 80s who are both Japanese, were believed to have been infected before health checks and a Feb. 5 quarantine began on the ship, Health Ministry official Masami Sakoi said. It was not immediately known if they had any roommates on the ship.

They had been hospitalized on Feb. 11 and 12 and each tested positive a day later. It was not immediately known why they were not tested earlier when they developed initial symptoms and consulted with the ship's clinic, Sakoi said.

The ministry also announced Thursday that two more government officials had become infected while providing clerical work on the ship to help in the quarantine effort.

Four other officials — a quarantine official, a paramedic who carried an infected passenger, a Health Ministry worker and an emergency relief medical expert — have also been sickened.

Mutating rapidly, could get much more lethal very quickly. From : <http://archive.is/gpZ2X>

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Second-generation cases have also been detected outside of Wuhan. This phenomenon indicates that the virus is "tough," according to Lai.

As a virus replicates in a new host, it typically weakens, therefore to see it survive through to the fourth generation suggests the Wuhan coronavirus has "adapted well in humans," Lai said.

According to Lai, RNA viruses—viruses that have RNA as their genetic material rather than DNA—such as the Wuhan coronavirus and SARS, have a "high mutation rate," which allows it to "change properties very quickly."

As an example, in the Lancet study, the RNA sequences isolated from 6 patients from the same household are different from each other, he noted. Lai said he observed in his previous research the "frequent occurrence of RNA recombination between different coronavirus strains," a sign of the virus evolving.

Such news "may not be so good to the ear; it suggests the difficulty of containing this virus," Lai said.

Can be spread on surfaces where it has landed: <http://archive.is/xyicr>

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Coronavirus may be spread by touching contaminated surfaces, WHO warns as global cases surge past 6,000 and the death toll hits 133

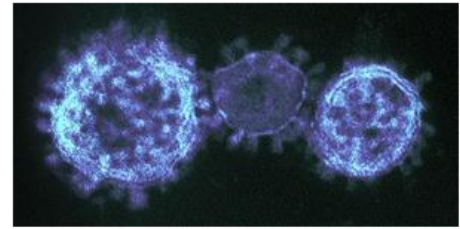
- Dr Maria Van Kerkhove said Wednesday that coronavirus can spread via fomites
- Fomites are inanimate objects or surfaces that virus can sit on for a short period of time before being picked up by animals or humans, which it then infects
- It could increase the new virus's contagious potential - but the WHO again declined to declare an international emergency on Wednesday

Corona virus can infect people through exposed conjunctiva (eyes). From: <http://archive.is/znw1C>

JAN 28, 2020

Alert: Important coronavirus context for ophthalmologists

Comprehensive Ophthalmology



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The Academy is sharing important ophthalmology-specific information related to the new coronavirus, referred to as "2019-nCoV," or simply the "Wuhan coronavirus." It is critical that all within our profession understand the risks associated with this outbreak to ensure our continued ability to care for our patients.

What you need to know

- Anecdotal reports suggest the virus can cause conjunctivitis and possibly be transmitted by aerosol contact with conjunctiva.
- Patients who present to ophthalmologists for conjunctivitis who also have respiratory symptoms and who have recently traveled internationally, and certainly those recently in China or with family members recently back from China, could represent cases of 2019-nCoV.
- The Academy and federal officials recommend protection for the **mouth**, **nose** and **eyes** when caring for patients potentially infected with 2019-nCoV.

Can survive for nine days and remain infective on surfaces, so exposed gear should self-sterilize after nine days of being left alone, however this could possibly be wrong. This is an extrapolation from other Corona viruses, and this trait can vary with temperature and humidity. Still, best way to kill it is 70% alcohol, .5% peroxide, or .1% bleach. From: <http://archive.is/N6ozU>



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See a unique method of key symptom tracking for moderate to severe RA patients on treatment

Coronavirus can live on common surfaces for nine days - how to kill it

This study shows some Veterinary Coronaviruses can survive on surfaces for 28 days, but are still sterilized chemically after 60 seconds exposure:

<http://archive.is/HsmZ9>

Tamiflu may have activity against Corona virus, and stocking up before any shortages may be useful. From - <http://archive.is/YkCbL>

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Thai medics claim coronavirus breakthrough: Patient is declared 'disease-free' in 48 hours using HIV and flu drugs - as Dettol is forced to warn there is 'NO evidence spray kills virus'

- Medics tested drug mix on patient in 'serious condition' who turned disease-free
- The antiviral drugs are normally used for HIV and influenza treatment
- Thailand has 19 confirmed cases of coronavirus but only 11 still in hospital

Lung scarring is seen in severe cases. From: <http://archive.is/4qqLY>



Chinese doctors say coronavirus 'like a combination of SARS and AIDS', can cause irreversible lung damage

Chinese doctors say autopsies of coronavirus patients suggest the deadly illness is "like a combination of SARS and AIDS" that can cause "irreversible" lung damage.



Frank Chung [@franks_chung](#) 41 comments


news.com.au MARCH 5, 2020 5:07PM

Chinese doctors say autopsies of coronavirus victims suggest the deadly illness is "like a combination of SARS and AIDS" that can cause "irreversible" lung damage even if the patient recovers.

Asians may be at biggest risk, as are smokers: <http://archive.is/LAWI3>

Coronavirus risk for Asians, Africans, Caucasians revealed

Japanese and Chinese at highest risk for Coronavirus

 Juergen T Steinmetz February 10, 2020 20:49



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▶× What is your risk to get infected coronavirus?

East Asians, Japanese, and Han Chinese are the most likely people to become severely sick by the coronavirus with a chance of more than 90% when exposed. Europeans only rank in the 50%, Africans in the 60% range, and considered low to medium. It also makes a difference if one is a smoker or non-smoker.

The Travel and Tourism industry is in turmoil. Tourism leaders don't want anyone to panic, but the story

doesn't yet have an end to it.

At the same time, researchers are working around the clock to learn more about the deadly virus. Recent studies may explain why Europe, America had no deadly cases of the virus, and no coronavirus cases at all were reported from Africa.

20 times deadlier than the flu. From : <http://archive.is/sQ8So>

Saturday, February 22, 2020

Washington Examiner

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2019 coronavirus is 20 times deadlier than the seasonal flu: Study

The 2019 coronavirus is about 20 times more deadly than the common flu, according to new reporting from the Chinese Center for Disease Control and Prevention.

The Chinese CDC puts the mortality rate of the coronavirus at about 2.3%, after finding that out of 44,672 cases confirmed in China, 1,023 had died by Feb. 11. The rate of seasonal flu fatalities, in comparison, hovers around 0.1%.

Fireman was infected despite using N95 paper facemask/goggles. From:<http://archive.is/kgy3m>

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CORONAVIRUS

Japan seized with anxiety over homegrown outbreak

Lack of beds and limited testing ability raise fears of nation unprepared to cope

YOSUKE KURANABE, Nikkei staff writer
FEBRUARY 15, 2020 06:54 JST

TOKYO -- With the coronavirus now spreading to patients lacking direct ties to China, Japan is scrambling to strengthen screening and treatment capacity in case a full-blown crisis erupts.

A clinic near Shinjuku Station in central Tokyo has been seeing more and more patients worried they could have the new virus. So far, it has asked patients with coldlike symptoms whether they have visited Wuhan, the Chinese city at the center of the outbreak. But it could soon start asking about trips to any overseas locations.

"Even medical professionals have trouble telling whether patients have the regular flu or the new coronavirus, so we don't know what to tell people to look out for," clinic chief Rintaro Hasuike said.

"There've been more patients looking to get tested, and we don't know what to do," the head of another Tokyo clinic said.

The health ministry tells the members of the public on its website to first telephone their local support centers for overseas returnees if they suspect that they have the coronavirus. But not everyone knows about these centers.

Fears are starting to emerge that this might turn into a widespread epidemic. Four new patients were confirmed across Japan on Thursday. Authorities have failed to determine how two contracted the virus.

On Friday, a fire department employee who had helped with patient transport from the Diamond Princess cruise ship quarantined at Yokohama tested positive, despite having worn protective gear.

The virus has already mutated into a more virulent, spreadable form, after just a couple of months and 60-70,000 patients in China. Bear in mind, the 1918 flu had started relatively harmlessly for the first year that it jumped across the globe, before mutating in a single person into the more virulent form which tore across the world in 1918 and killed millions. Middle Eastern Respiratory Syndrome (MERS) is a similar coronavirus (since contained) to COVID-19. Before being contained, it had a 34% mortality rate. So COVID-19 could get much worse.

ACCEPTED MANUSCRIPT

On the origin and continuing evolution of SARS-CoV-2

Xiaolu Tang, Changcheng Wu, Xiang Li, Yuhe Song, Xinmin Yao, Xinkai Wu, Yuange Duan, Hong Zhang, Yirong Wang, Zhaohui Qian ... [Show more](#)

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National Science Review, nwa036, <https://doi.org/10.1093/nsr/nwa036>

Published: 03 March 2020

ABSTRACT

The SARS-CoV-2 epidemic started in late December 2019 in Wuhan, China, and has since impacted a large portion of China and raised major global concern. Herein, we investigated the extent of molecular divergence between SARS-CoV-2 and other related coronaviruses. Although we found only 4% variability in genomic nucleotides between SARS-CoV-2 and a bat SARS-related coronavirus (SARSr-CoV; RaTG13), the difference at neutral sites was 17%, suggesting the divergence between the two viruses is much larger than previously estimated. Our results suggest that the development of new variations in functional sites in the receptor-binding domain (RBD) of the spike seen in SARS-CoV-2 and viruses from pangolin SARSr-CoVs are likely caused by mutations and natural selection besides recombination. Population genetic analyses of 103 SARS-CoV-2 genomes indicated that these viruses evolved into two major types (designated L and S), that are well defined by two different SNPs that show nearly complete linkage across the viral strains sequenced to date. Although the L type (~70%) is more prevalent than the S type (~30%), the S type was found to be the ancestral version. Whereas the L type was more prevalent in the early stages of the outbreak in Wuhan, the frequency of the L type decreased after early January 2020. Human intervention may have placed more severe selective pressure on the L type, which might be more aggressive and spread more quickly. On the other hand, the S type, which is evolutionarily older and less aggressive, might have increased in relative frequency due to relatively weaker selective pressure. These findings strongly support an urgent need for further immediate, comprehensive studies that combine genomic data, epidemiological data, and chart records of the clinical symptoms of patients with coronavirus disease 2019 (COVID-19).

Keywords: SARS-CoV-2, virus, molecular evolution, population genetics

Issue Section: [Research article](#)

What's the Difference Between N95, N99 and P95 Air-Masks

Air masks come in several specifications and sport a different brand and price tag each.

You might have seen people wearing surgical masks to counter pollution, but those aren't really helpful as they're meant to help contain the wearer's bacteria and viruses from getting out, not the other way around.

Any pollution mask should be able to protect its wearer from suspended particulate matter (10 or 2.5), sulphur dioxide and carbon dioxide.

Here, we're going to talk about the difference between an N95, N99 and P95 air masks and which one suits your needs the best.

N95 Air Masks

Masks that come with an N95 rating can filter up to 95% of the particulate matter 2.5 from the air you breathe.

PM 2.5 tends to stay the longest in the air and can lead to plaque deposit in your nose, throat, lungs or even the arteries and can lead to a heart attack.

Your best buy in an N95 air mask should have a valve or two — which are dedicated for the exhaled air. The valves will help in ensuring that there is no moisture near the nose bridge or your eyes.

Numerous options are available online, but for N95 masks we recommend Honeywell and 3M branded masks.

N99 Air Masks

N99 air masks can filter up to 99% of the particulate matter 2.5 from the air. Just like the N95, they don't work well against oil-based pollutants, but are better than the former because of the higher filter rate of particulate matter. Due to increased filtration, they are harder to inhale through, however.

For the N99 variant, we recommend buying Vogmask, Cambridge or SmartAir pollution masks.

Packs of 5, 10 and 20s are also available in few of the brands, and you might want to opt for that because these masks are only meant to serve their purpose for a limited amount of time — approximately 40 hours of wear time.

P95 Air Masks

The major difference between P-rated and N-rated air masks is their ability to filter out oil-based pollutants, which the former can while the latter can not.

In addition to clearing out oil-based pollutants, these air masks can filter out 95% of the particulate matter from the air.

The P-rated masks are more efficient as well as more expensive than their N-rated counterparts and have to be replaced after approximately 40 hours of usage too.

P95 air masks are sold by 3M.

P100 filters

As long as your mask fits properly a P100 filter will block 99.97% of particles .3 microns or larger, both oil-based and water-based.

What's the Difference Between a CV Marked Masks and Others?

CV marked masks are better at filtering out specific pollutants as explained below:

The 'C' in CV stands for activated carbon filter. In addition to combating foul smell, this filter helps in fighting pollutants like Ozone and Sulphur Dioxide.

The 'V' signifies that the said mask has a built-in valve for the air we exhale, which prevents fogging or moisture retention inside the mask.

The CV marked masks are more effective in combating air pollutants and keeping you safe than the non-CV marked masks.

A mask is only as efficient as the fitting on your face — gaps between the mask and your skin will allow for pollutants to enter your nasal passage and cause health issues.

When buying a mask, you should be careful of the size and also should read the instruction manual that comes along with the mask carefully.

You've to keep in mind to invest in a mask that gives you quality for your money. Cheaper options might seem easier to procure but keep in mind that investing in an air mask is investing in your health and well-being.

People who are active fitness enthusiasts, such as runners or cyclists, should go for masks that have a few valves to avoid moisture build-up within the mask which will, in turn, clog the masks and give you trouble inhaling.

Shopping on ebay – go to ebay.com, enter search terms in search box, click enter, then alter search results as follows:

The screenshot shows an eBay search results page for the query "3m 6800 full face respirator". The page layout includes a top navigation bar with the eBay logo and search bar, a left sidebar with filters, and a main content area displaying search results.

Search Bar: The search bar contains the text "3m 6800 full face respirator". Below it, there are filters for "All Listings", "Accepts Offers", "Auction", "Buy It Now", "Condition", and "Delivery Options".

Filters (Left Sidebar):

- Categories:** All, Business & Industrial, Facility Maintenance & Safety, Personal Protective Equipment (PPE), Masks & Respirators, Mask Replacement Cartridges, Respirator Masks, Other Masks & Respirators, Home & Garden, Collectibles, Camera & Photo.
- Brand:** (Dropdown menu)
- Guaranteed Delivery:** No Preference, 1 day shipping, 2 day shipping, 3 day shipping, 4 day shipping.
- Condition:** New (127), Used (2).
- Price:** Under \$35.00, \$35.00 to \$55.00, Over \$55.00.
- Buying Format:** All Listings (109), Accepts Offers (21), Auction (2), Buy It Now (134).
- Item Location:** Default, Within 100 miles of 11788, US Only, North America, Worldwide.
- Delivery Options:** Free Shipping.

Search Results:

- Result 1:** "USA STOCK FAST DELIVERY" sponsored listing for "For 3M 6800 Facepiece Respirator Full Face Painting Spraying Gas Mask USA SELLER Brand New". Price: \$40.07. Buy It Now. Free Shipping. Promotion: Buy 1, get 1 8% off.
- Result 2:** "DISASTOCK" sponsored listing for "For 3M 6800 Series Full Face Vapor Dust Mask Respirator - 6800 Spray Paint New Brand New". Price: \$44.98. Best Offer. Free Shipping. Watch. Promotion: Save up to 8% when you buy more.
- Result 3:** "USA STOCK" sponsored listing for "Gas Mask Full Face Painting Spraying Similar for 3M 6800 Facepiece Respirator US Brand New". Price: \$40.07. Best Offer. Free Shipping. Watch. 7 new & refurbished from \$26.46. Promotion: Save up to 8% when you buy more.
- Result 4:** "3M Full Face 6800 Reusable Respirator Size Medium New In Box 07163 Brand New". Price: \$85.00. Best Offer. Free Shipping. Only 1 left! 39 sold. Watch. 15 new & refurbished from \$85.00.
- Result 5:** "7in1 Facepiece Respirator Painting Spraying For 3M 6800 Full Face Gas Mask US Brand New". Price: \$39.99. Buy It Now. Free Shipping. Only 1 left! 19 sold. Watch.

Figure 1

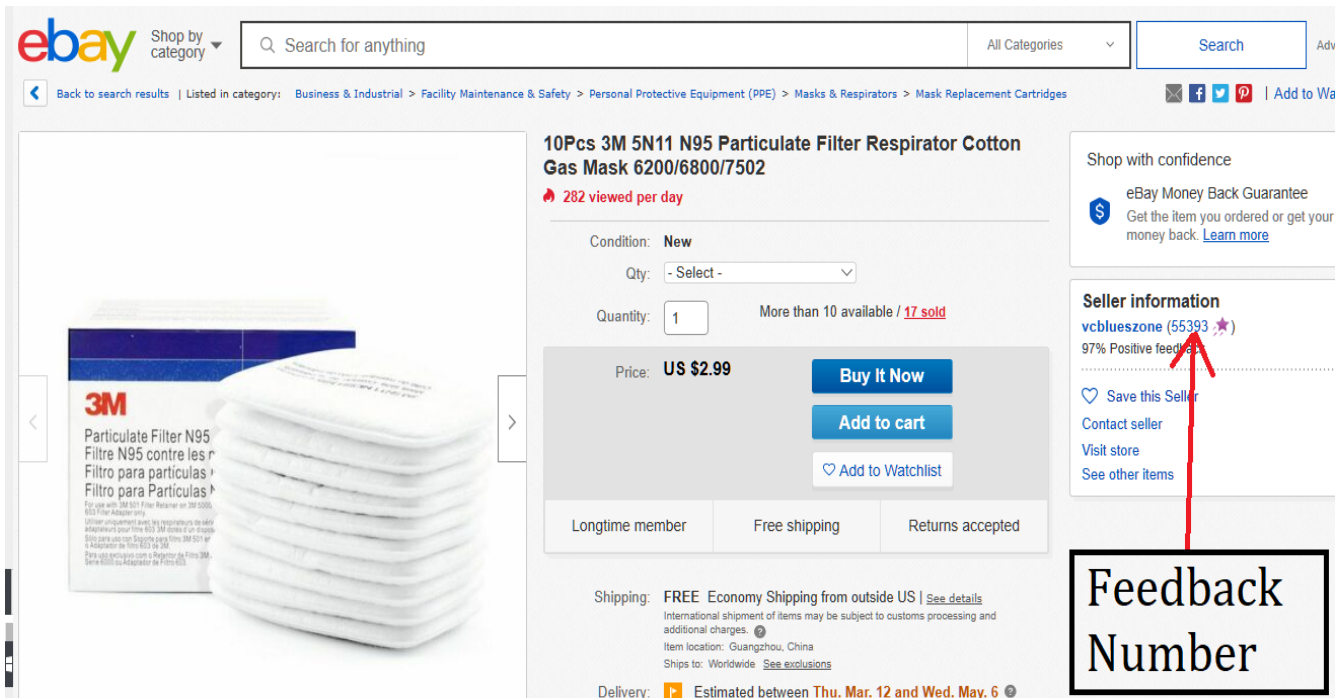


Figure 2

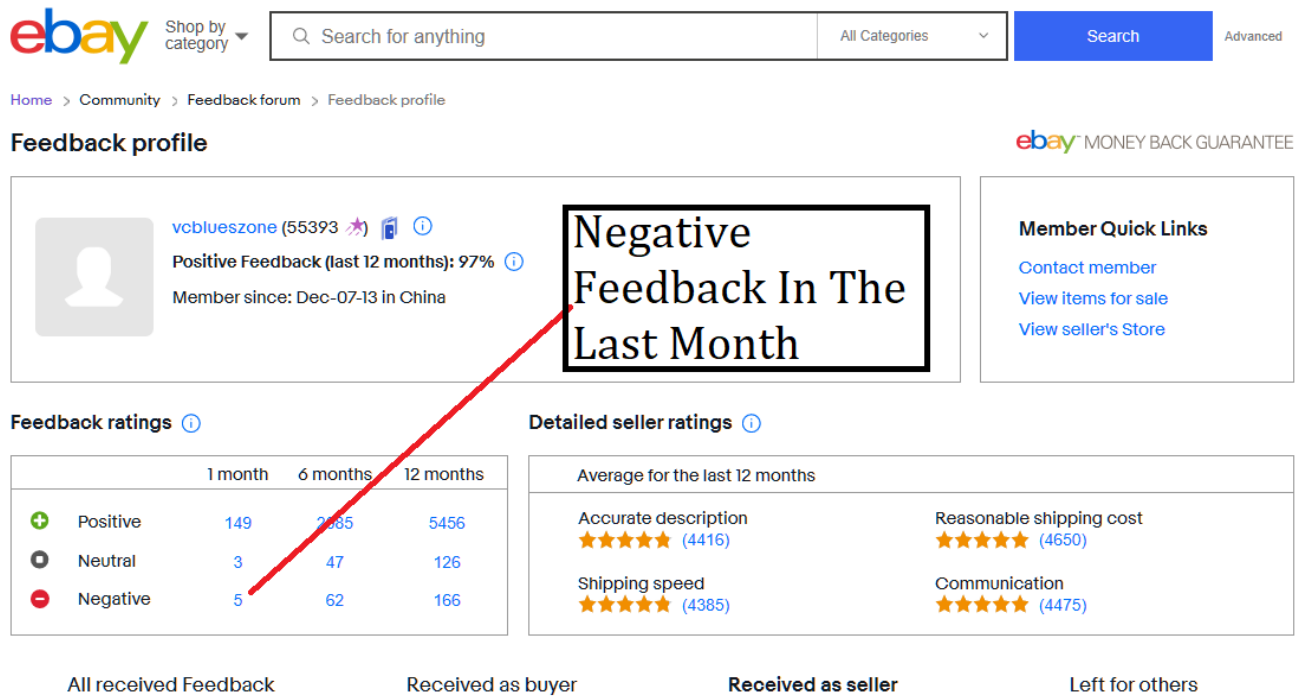


Figure 3

Ebay allows you to fill your cart once, and check out once as a guest. The second time you attempt to buy, they want you to open an account with ebay, and their payment service Paypal. I have done it and found it useful, and the prices are great, but just know you get one guest checkout, and after that first purchase, they want an account set up to make future buying easier, and encourage you to do it.

Searches to perform:

Necessary parts of a N95 respirator with a latex seal and eye protection which offers effective protection from airborne virus particles traveling on fomites (cough droplets) are as follows:

“Full face respirator” - Chinese brand, functional, ~\$45, possibly a wait for shipping, and should be either left for 10 days from ship date, since it has come from China, or sterilized with alcohol on arrival.



“3M 6000 series respirator” : Brand name, quality ~\$80-\$120



N95 filter pad holder. Holds pad with cover and mounts to mask. If pad is not inserted properly, air could bypass filtration.



“6001 respirator cartridge” More expensive than above holder at \$10-20 per pair. Performs the above function, as well as chemical removal of volatile organic vapors, but also offers second pass of marginal, (unrated/ not for standalone use) particulate filtration, so even if filter pad were to allow any air past due to poor installation, it would still be somewhat filtered. Can be beyond expiration date if you do not need solvent removal. The mask requires two, one for each side. You should have several for backups if entering houses with infected patients, so it can be replaced periodically:



“501 filter cover”

Snaps on and holds the N95 filter pad against the 6001 cartridge or filter holder. Should have one pair per pair of 6001 cartridges, with extras in the event you broke one removing/installing:



“5N11 filter 10”

N95 filter pads, the disposable part of the N95 filter. You will use them two at a time, one on each side. Filters 95% of all particulate matter, and is very effective against airborne biological matter that could carry viruses. Most commonly used compromise between high protection, length of functionality, and ease of airflow through it to make breathing easy:



P100 filters -

N95 filters filter 95% of particulate matter. These p100 filter disks for the 6800 mask adapter will filter 99.97% of particulate matter, including the fomites that carry viruses. They are standalone, disposable units for short use. Possibly harder to draw air through than N95. Low cost, but viruses will cling to felt cloth on the outside, possibly making handling and removal from mask risky. Can be acquired from the US at greater cost, or for much less if shipped from the factory in China.



P100 filter cartridges: Gold standard, standalone disposable units that do not require the 6001 cartridge or 501 cover to be installed. Harder to draw air through, and more expensive, but offer fuller P100 protection, and the filter material with virus particles is enclosed inside the plastic housing which can be rubbed with alcohol. As with other filters, replacement is indicated by being unable to draw air through the filter. 3M markets this filter in the US in several forms under the 7093 model number, some with additional protection against solvents or cyanide as indicated by letters following the 7093 (which are usable for viral protection as they still offer P100 filtration). In Europe the same filter is sold under the 6035 model number, with variants like 6038 for example offering additional chemical protection. They are occasionally available online or on ebay. I am not as familiar with other models, but P100 filtration designed to fit a 6000 or 7000 series 3M type mask is the key.



N95 filter mask. Some say an exhalation valve (pictured) allows air to be expelled quickly without unseating mask and loosening fit. Others say without a valve condensate from breath moistens the filter and enhances filtration of incoming particles. Either is inferior protection in a hot zone due to no silicone seal, but it's better than nothing where a full face mask is not feasible, or where infection is a small risk: Available at Walmart website for \$9-16 each, or on Ebay:

<https://www.walmart.com/search/?query=N95%20>

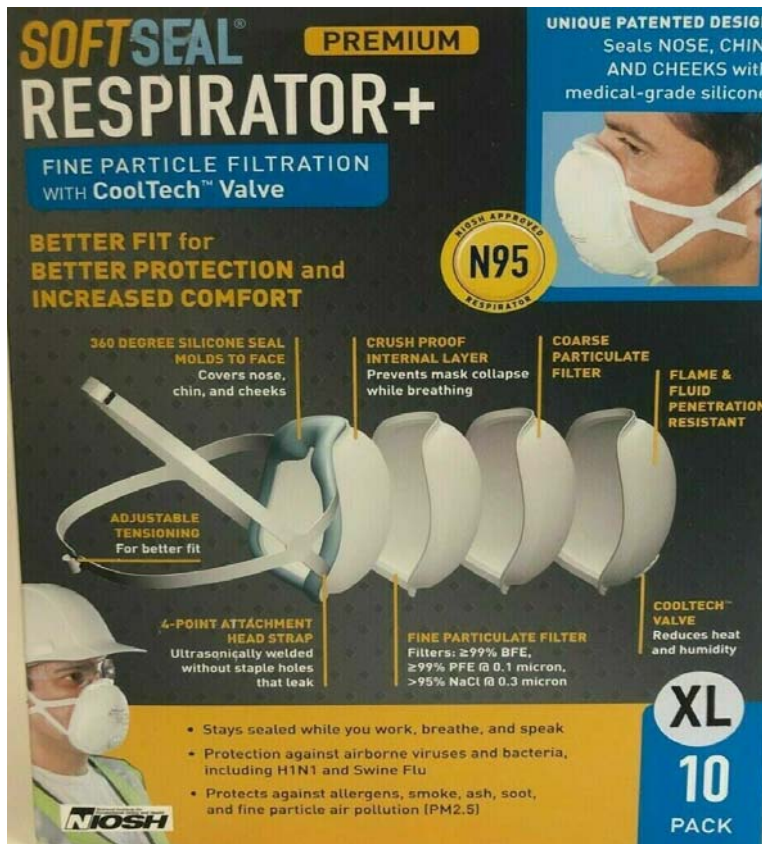


Medical goggles, or Glasses goggles. Seals around eyes more than sunglasses. You may want to seal the outer edge on the below model with additional foam, and close off the vent holes from the inside with liquid electrical tape/rubber to more fully enclose the eye area. Swim goggles that seal the eyes can also be used and may be superior. All will suffer from fogging issues if they are sealed properly.

<https://www.walmart.com/ip/Biker-ATV-Night-inside-Goggles-Interchangeable-Anti-Fog-Motorcycle-From-comfort-Sunglasses-3-Are-Padded-Day-Lenses-frame/359580247>



SoftSeal Respirators. One brand of a few that are regular N95 paper respirators with a silicone gasket to make a tight seal with the face. SoftSeal brand features a wire shell to prevent mask collapse, and is available with or without a valve to allow escape of expelled air. See <http://Softsealmask.com>:



“70% Rubbing Alcohol” For sterilization. More effective than 100%, Requires 60 seconds contact with surface before removal for effective sterilization. Use 1 bottle per incident, generously.

“Nitrile gloves” Disposable in boxes of 100

“Tyvek suit with hood” Best if disposable, but can probably can be reused after 10-28 days of disuse, and will have self sterilized according to current information. Can also be soaked in dilute bleach to sterilize. Freely available on ebay.

“Medical booties” To avoid tracking virus with shoe soles. Disposable, in boxes of 100. Should be shin or knee high, rather than the more common shoe booties which leave the top of the shoe exposed.

General procedures via online say you suit up 30 ft upwind from a site, before entering a contaminated area. On leaving, you use 70% rubbing alcohol (MORE lethal to microbes than 100%) to soak and rub gloves, then use clean gloves to spray/rub exposed portions of mask with 70% rubbing alcohol (the mask is worn under the tyvek suit's hood). Do not get alcohol on the filter material so it enters the airflow into the mask as it will irritate the eyes and nasal membranes. Tyvek suit is then rubbed or sprayed down with alcohol for 60 seconds before being wiped off, and booties are sprayed/rubbed down as well. Suit and booties are removed, and stored in a bag for 10-28 days or soaked in dilute bleach, during which a new suit is used. Stretch new elastic gloves over filters on mask to enclose them (only remove the gloves last after fully suiting up for next use), re-alcohol hands, and then mask is removed and stored without touching the face. Entire filter unit can be left sealed, disposed of if desired, or removed and set aside for 10-28 days. Then gloves are removed by turning inside out and disposed of. Do not unsuit or remove mask without decontaminating, even if you've left to an uncontaminated area. Once the suit and mask are contaminated, they can infect you if you remove your face protection. Use hand sterilizer last.

All info is best available, but the virus is mutating vast due to being an RNA virus, much info on sterilization is based on other, previously studied corona viruses, and new information could emerge. Masks are the critical element and are selling out quickly.

Rough prices on Ebay are as follows, but they will rise rapidly as time goes on. Walmart.com is also a good source for respiration supplies if available:

6800 type full face Chinese respirator mask - \$40-45

3M brand full face respirator mask \$85-100

6001 cartridges - \$20-30 for a pair

501 filter covers - \$5-10 per pair

N511 N95 filter pads - \$10-20 for ten, two are used at time

Round P100 filter pad - ~\$2-3 per pair

3M 7093 P100 filter cartridges - ~\$12-20 per pair

Tyvek suit with hood - \$6-20

Gloves and booties are negligible, when bought in boxes of 100 for \$10-15.

Some respirators sold as "Full Face" are actually half-face mouth respirators with goggles, which will fog up and be more difficult to remove without touching around the eyes. Full face respirators should look like the pictures above, and not look like goggles.

I think you will see it, and by the time it arrives, protective gear will be sold out. Whether it is catastrophic or not will be solely based on whether or not it is Asian-specific, whether or not it overwhelms health-care services, whether summer time reduces its ability to spread, and whether or not it mutates to grow more virulent.

Be advised many feel public recommendations for safety procedures may have a political component designed to avert panic by using lesser safety measures, such as in Japan where N95 respiratory protection was used, rather than more ominous full-face p100 respirators or positive pressure protection suits, which would normally be recommended for use in protection from potentially deadly and potentially pandemic viruses. If you receive recommendations on protective gear less stringent than here, understand there may be political factors involved in their presentation, and no harm will come from following these more stringent recommendations.

They say a mask with a silicone or latex seal is vital, and the paper N95 masks you see without seals are not as good, since they do not seal to the face 100%, making their effective rating even less than N95. Though they are better than nothing. Several health workers visiting the Diamond Princess cruise ship were infected despite using standard N95 paper masks and goggles, presumably due to virus sneaking around the paper mask where it meets the face, or N95's reduced efficacy at filtration compared to p100..

The full face respirator offers two main advantages. Your hands do not go near your eyes, as with goggles, removing a potential means of accidental exposure. Also, the glass over your eyes will not fog up, as the mask draws clean/filtered air in front of the glass, defogging it, before sending it into the respirator to be inhaled. They say filter replacement should occur when you feel airflow restriction.

When changing N95 filter pads, spray the entire filter assembly, and the surface of the old pad while installed, with 70% rubbing alcohol before handling to prevent anything from going airborne. Then with gloves I would remove the cover plate, rub it down, and dispose of the old pad. If I would also spray the 6001 filter cartridge lightly with alcohol and let it air dry, before replacing a new pad and the filter cover.

A few things when buying – look at the arrival date to make sure it comes fast. A few sellers have sold out but still list the items with a fast arrival date, planning to ship them to you when new units arrive from China, where the outbreak is. To bypass that, always click on add to cart, and then go to your cart. When you go to check out, over the item, in red, it will say the seller is on vacation, and arrival will take additional time. Remove the item from your cart and look at another listing until you see one with a fast arrival time and no such warning. Some may still have sold out, and you may still have to wait a week or two to get it and that may be unavoidable. Don't be afraid to complain to the seller via email.

Any virus should be long dead during shipping (make sure shipping takes ten days for any item from China, or set the box aside for ten days from the ship date to be sure all viral particles will die before opening). Finally, click the feedback rating number next to the seller's name (Figure 2), then click on the number of negative ratings in the last month (Figure 3), scroll down and see how many negative feedbacks complain about delays in their mask shipments. The cheaper the price of the masks, generally, the more likely it will be the seller will have sold out and you will have to wait a week until the

next shipment arrives. Also, as in Figure 1, always arrange listings from lowest price to highest, check the box for Buy it Now (so you don't waste time with auctions that close at arbitrary times) check the box for US sellers if you do not want to buy from Chinese vendors, and check the box for new. Google can also help you find items at good prices.

3M is a more professional brand but their masks are sized. Medium size fits 80% of the population plus most all large-sized individuals as well. Large 3M masks may be too big and not seal properly. Small 3M masks are for children and very small adults. The Chinese mask you will see most commonly on Ebay (pictured first in the mask section) may say large, but it is really one-size fits all, and will likely work for even smaller women. Tyvek suit sizing chart is attached.

Masks should be fitted to the face and straps adjusted until the seal is tight. The seal is tested by removing the filters. While the filter holes on each side are covered with the palms tightly, and the rubber gasket around the hole pressed tightly, inhale. The mask should suck tightly against the face, with no leakage of air around the seal. On 7093 filters the cover can be pressed against the mask to shut airflow off to test the seal.

There are a plethora of other types of filters beyond those listed here, and some may not fit the mask, as some masks use different mounting systems. Be certain your chosen filter offers N95 or p100 level filtration, and is compatible with 3M 6000 series masks, if your mask uses 3M 6000 series type filter mounts. Also, you might get good prices buying through the Crime lab.

Vitamin D, Vitamin C, and Zinc may help prevent viral infections. Populations supplemented with Vitamin D have been noted to be resistant to flu infection, zinc has been shown to thwart Corona virus infection, and C can shorten flu symptoms. Some researchers postulate that the seasonal variability in various viral outbreaks, from Flu to SARS, may be due to increased production of vitamin D in skin due to increased exposure to sunlight in the summer

Excerpt from <http://www.freerepublic.com/focus/f-news/1736605/posts> follows:

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The Antibiotic Vitamin

[Science News](#) ^ | 11-10-2006 | Janet Raloff

Deficiency in vitamin D may predispose people to infection

Janet Raloff

In April 2005, a virulent strain of influenza hit a maximum-security forensic psychiatric hospital for men that's midway between San Francisco and Los Angeles. John J. Cannell, a psychiatrist there, observed with increasing curiosity as one infected ward after another was quarantined to limit the outbreak. Although 10 percent of the facility's 1,200 patients ultimately developed the flu's fever and debilitating muscle aches, none did in the ward that he supervised.

***WINTER WOES.** Cold-weather wear and the sun's angle in the winter sky limit how much ultraviolet light reaches the skin. This can add up to a deficiency in production of vitamin D, which might explain why respiratory infections are common and severe in winter. iStockphoto*

"First, the ward below mine was quarantined, then the wards on my right, left, and across the hall," Cannell recalls. However, although the 32 men on his ward at Atascadero (Calif.) State Hospital had mingled with patients from infected wards before their quarantine, none developed the illness.

Cannell's ward was the only heavily exposed ward left unaffected. Was it by mere chance, Cannell wondered, that his patients dodged the sickness?

A few months later, Cannell ran across a possible answer in the scientific literature. In the July 2005 FASEB Journal, Adrian F. Gombart of the University of California, Los Angeles (UCLA) and his colleagues reported that **vitamin D boosts production in white blood cells** of one of the antimicrobial compounds that defends the body against germs.

Immediately, Cannell says, the proverbial lightbulb went on in his head: Maybe the high doses of vitamin D that he had been prescribing to virtually all the men on his ward had boosted their natural arsenal of the antimicrobial, called cathelicidin, and protected them from flu. Cannell had been administering the vitamin D because his patients, like many other people in the industrial world, had shown a deficiency.

The FASEB Journal article also triggered Cannell's recollection that children with rickets, a hallmark of vitamin D deficiency, tend to experience more infections than do kids without the bone disease. He shared his flu data with some well-known vitamin D researchers, and they urged him to investigate further.

On the basis of more than 100 articles that he collected, Cannell and seven other researchers now propose that vitamin D deficiency may underlie a vulnerability to infections by the microbes that cathelicidin targets. These include bacteria, viruses, and fungi, the group notes in a report available online for the December *Epidemiology and Infection*.

This is only a hypothesis, "but a very credible one" that deserves testing, says immunologist Michael Zasloff of Georgetown University in Washington, D.C.

Behind the hypothesis are recent studies that link vitamin D intake to revved-up cathelicidin production. **These investigations point to an infection-fighting role for vitamin D**, which is produced in skin exposed to sunlight but is present in few foods.

A lot of the measures and equipment listed here sound crazy, but you have to picture being at a house with someone inside with respiratory distress, who just traveled to Italy or China, and may have a virus which kills one in 29 people who get it according to the latest WHO data, and which scars lungs in a sizable percentage of the 20-25% who need ICU care. If you go inside, you will be exposed to the virus, your elderly loved ones will be exposed to the virus, and all your friends will be exposed to the virus. Only this equipment offers a fully controllable method to avoid exposure.

The main objective with Corona virus may be to avoid infection (and reinfection)

as long as possible, and hope the summer interrupts the infection cycle, and/or a vaccine becomes available. At this point it is reasonable to expect this will become an explosive pandemic, before settling down and becoming a constant, low-level endemic pathogen which will always be around.

The spectrum of times to become infected will transition from an early phase when few are afflicted, and you will be able to get treated but protocols will still be getting worked out and treatment will be poorly designed, to a pandemic phase when infections will overwhelm the hospital system and you will not be able to get treated because beds will not be available (and the 20-25% who need artificial respiration may not be able to get an artificial respirator because there will not be enough available), before transitioning to the later endemic phase when hospital treatment will be available due to reduced caseload and treatment protocols will be well worked out and designed to produce maximum efficacy.

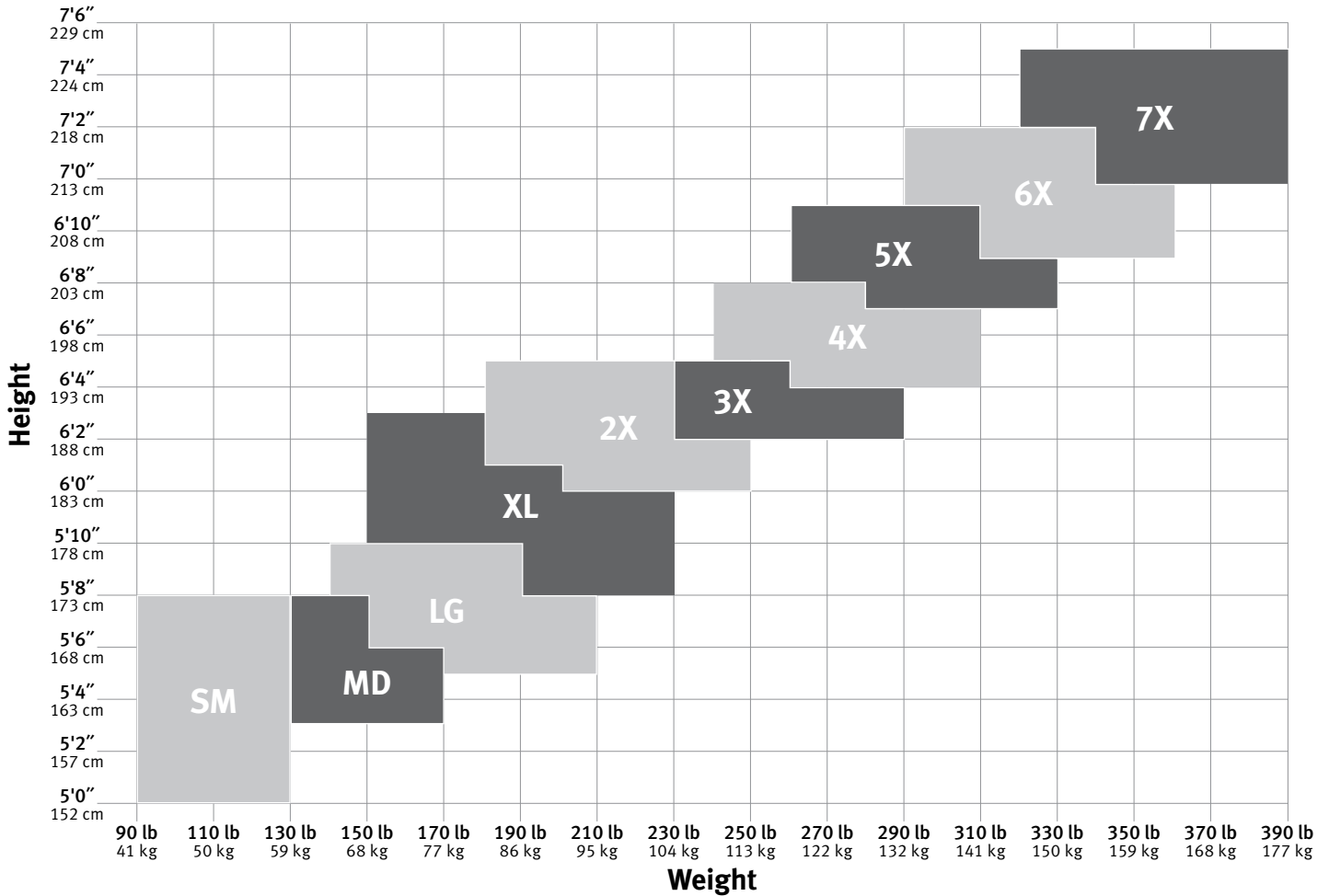
One problem will be that in the first world now, while 75-80% of the cases require no treatment and are exceptionally minor, 20-25% of the patients require intensive care, which almost always means artificial respiration. Even this ideal treatment regime still yields a 3.4%% mortality according to the latest World Health Organization numbers, which translates to a one in twenty-nine chance of dying. However if the hospital system became overwhelmed, there are only a limited number of artificial respirators in the system. If artificial respiration is removed from the equation due to overwhelming case load, it is not impossible you could see a 10-20% mortality rate. It is suspected this may have occurred in China, and those who were turned away from the hospital (115 out of 120 according to one doctor) were not included in official statistics because they were never officially tested. So when China emphasized they were only including “confirmed cases,” all those sent home were not included or even examined for diagnosis or outcomes.

Thus it would be ideal to be among the last infected, as ICU beds open up. Absent that supplementing daily Vitamin D, Vitamin C, Zinc, and maintaining good health in hopes of being one of the 80% of minor cases is not a bad fall back strategy.

Also do not forget mail can be a vector of disease. You can use perfect protection outside of home, come home, pick up your mail, and it can have viruses on it which you pick up on your hands and infect yourself with. Heating mail to 140-150 for a few hours, ironing mail, or leaving mail to sit for 9 days or more, as well as exercising general caution with it and washing hands rigorously after handling it are various ways to minimize this risk. Items bought at stores such as cans of food or clothes can also pose such a risk, so if it becomes serious only buying canned food and sterilizing the cans would be prudent during the troubled period.

Sizing Charts

Sizing for protective garments



Sizing for fully encapsulated suits

This chart is based on individuals wearing SCBA, safety helmet and standard work clothing. Fit varies with individual body shape.

