



Reasoning COVID-19

by [Dr. Mark Force](#)

Introduction

There is a lot of bad information out there about COVID-19 and that information can range from being a hoax to being the zombie apocalypse.

But keep in mind something Abraham Lincoln said -

“Don’t believe everything you read on the internet.”

Also, much of what is being covered in the news and social media lacks context or has incorrect context.

“Corona virus is NOT the zombie apocalypse! Take a deep breathe; relax.”

The intention of this paper is to go through the research and contextualize it in a non-sensational manner to give you useful strategies and tools to help you to understand COVID-19 and be able to take reasonable action toward both preventing infection and, if infected, protect yourself from complications associated with the infection.

Origins of COVID-19

The new/novel virus COVID-19 (SARS-CoV-2) broke into the human population in Wuhan, China in December 2019. There are two strains - L and S subtypes/strains. The L type is more aggressive and was more prevalent early on in the Wuhan outbreak and since January 2020 is less prevalent most likely due to selective pressures from higher levels of quarantine, treatment, and deaths associated with this strain. The higher mortality rates from this region of China may be due to the higher percentages of this strain in COVID-19 infected populations there.

The S strain of COVID-19 is “evolutionarily older and less aggressive, might have increased in relative frequency due to relatively weaker selective pressure.”^{1,2}

It is common for new/novel virus to arise from Asia due to the prevalence of “wet markets” - “markets selling fresh meat, fish, produce, and other perishable goods as distinguished from “dry markets” which sell durable goods.”³

The wet markets of China, Laos, Vietnam and Myanmar are prone to developing novel/new viruses due to the close proximity and even crowding of domestic and wild animals.⁴

¹ Weaker selective pressure refers to lower rates of quarantine, medical treatment, and deaths from infection.

² [Xiaolu Tang, Changcheng Wu, Xiang Li, Yuhe Song, Xinmin Yao, Xinkai Wu, Yuange Duan, Hong Zhang, Yirong Wang, Zhaohui Qian, Jie Cui, Jian Lu, On the origin and continuing evolution of SARS-CoV-2, National Science Review, March 2020.](#)

³ https://en.wikipedia.org/wiki/Wet_market

⁴ [Melinda Liu, Is China Ground Zero for a Future Pandemic?, Smithsonian, November 2017.](#)

Transmission, Incubation, and Infection Prevention

Transmission is primarily via respiratory droplets broadcast through sneezing, coughing, or through touching surfaces recently in contact with excretions from nose or throat. The virus appears to be as communicable as common flu viruses.

The virus does not appear to be communicable via blood, urine, or stool. Incubation appears to be 5 days from infecting exposure.⁵ People with mild cases of COVID-19 infections test for no longer being carriers/transmitters after approximately 10 days after onset of infection.⁶

COVID-19 can be transmitted by asymptomatic carriers of the infection.⁷ Food does not appear to be a vector for transmission of the virus.⁸ Breastfeeding probably does not transmit COVID-19.⁹

Infection Prevention Habits

- Daily health habits - eat whole and fresh foods, drink water, get enough sleep, exercise regularly, have fun and stress less.
- Wash your hands often with soap and water for at least 20 seconds (hand sanitizer OK, if soap not available), especially before touching your eyes, nose, or mouth or eating.
- People with symptoms of acute respiratory infection should practice cough etiquette (maintain distance, cover coughs and sneezes with disposable tissues or clothing (if not available, cough/sneeze into your elbow, and wash hands).
- To the extent possible, avoid touching high-touch surfaces in public places.
- Avoid close contact with people who are sick and stay home when you are sick.
- Clean frequently touched objects and surfaces with regular household cleaning spray/wipe.
- Follow public health advice regarding school closures, avoiding crowds and other social distancing measures.
- Avoid crowds, especially in poorly ventilated spaces.
- Avoid all non-essential travel including plane trips, and especially avoid embarking on cruise ships.

⁵ [Lauer SA, et al, The Incubation Period of Coronavirus Disease 2019 \(COVID-19\) From Publicly Reported Confirmed Cases: Estimation and Application, Ann Intern Med. Mar 2020.](#)

⁶ [Helen Branswell, People 'shed' high levels of coronavirus, study finds, but most are likely not infectious after recovery begins, STAT, March 2020.](#)

⁷ [Yan Bai, MD; Lingsheng Yao, MD; Tao Wei, MD; et al, Presumed Asymptomatic Carrier Transmission of COVID-19, JAMA, February 2020.](#)

⁸ [Coronavirus: no evidence that food is a source or transmission route, European Food Safety Authority, March 2020.](#)

⁹ [Interim Guidance on Breastfeeding for a Mother Confirmed or Under Investigation For COVID-19, CDC.](#)

Signs and Symptoms of Infection

COVID-19 is a mild to severe viral lower respiratory infection. Most people (~80%) will have mild to moderate symptoms. Symptoms include fever, cough, and shortness of breath. Because of the infection being lower respiratory, rather than upper respiratory like a “cold,” most of the symptoms are felt in the chest and lungs.

Symptoms of COVID-19 Infection (incidence%)¹⁰

- **Fever (88%)**
- **Dry cough (68%)**
- Fatigue (38%)
- Coughing up sputum, or thick phlegm, from the lungs (33%)
- Shortness of breath (19%)
- Bone or joint pain (15%)
- Sore throat (14%)
- Headache (14%)
- Chills (11%)
- Nausea or vomiting (5%)
- Stuffy nose (5%)
- Diarrhea (4%)
- Coughing up blood (1%)
- Swollen eyes (1%)

For most people symptoms of the infection will be mild to moderate and selfcare typical of having the “flu” will be adequate. It is not unusual for people to be asymptomatic carriers/transmitters of the virus.

The CDC has a solid [summary of what to do if you contract COVID-19 infection](#).

Important!: Warning signs or symptoms that indicate a need for **immediate** medical attention include -

- Difficulty breathing or shortness of breath
- Persistent pain or pressure in the chest
- New confusion or inability to arouse
- Bluish lips or face

NOTE: This list is not all inclusive. Please consult your medical provider for any other symptoms that are severe or concerning!

¹⁰ [Report of the WHO-China Joint Mission on Coronavirus Disease 2019 \(COVID-19\)](#)

Incidence of Complications and Mortality

Annual flu in the US has a mortality rate of ~.1%. Most complications are in the elderly or in those with significantly compromised health.

How does this translate to actual numbers?

“While the impact of flu varies, it places a substantial burden on the health of people in the United States each year. CDC estimates that influenza has resulted in between 9 million – 45 million illnesses, between 140,000 – 810,000 hospitalizations and between 12,000 – 61,000 deaths annually since 2010.”¹¹

The CDC estimates that flu deaths in the US from October 1, 2019 to March 7, 2020 may be as high as 55,000.¹²

We need to take the risk of COVID-19 infection seriously and at the same time keep the risks associated with this virus in perspective. There is too much hysteria being promoted by news networks and social media at this time. Be informed, be aware, and take reasonable action.

Much of the concern regarding COVID-19 has come from reports of mortality rates as high as 20% of those infected in Wuhan, China to global mortality rates of approximately 5.7% according to WHO estimates.¹³

There are other viral infections we have faced with larger mortality figures -

There are solid indications that the mortality is actually much lower. A retrospective study of the COVID-19 infection pattern in China published in The New England Journal of Medicine late February 2020 indicated a mortality rate of 1.4% with another article from the same journal projecting a mortality rate of less than 1%.^{14, 15}

In South Korea, the mortality rate has been estimated at .6-77%.^{16, 17}

Why the huge difference? The more people tested, the more accurate and dependable the data. South Korea has, arguably, the most robust COVID-19 testing program in the world. And, so, .6-77% or close to it is probably the actual mortality rate that will eventually be associated with this virus.

¹¹ [Disease Burden of Influenza, CDC.](#)

¹² [2019-2020 U.S. Flu Season: Preliminary Burden Estimates, CDC.](#)

¹³ [D Baud, et al, Real estimates of mortality following COVID-19 infection, Lancet, March 2020.](#)

¹⁴ [Wei-jie Guan, Ph.D, et al, Clinical Characteristics of Coronavirus Disease 2019 in China, NEJM, February 2020.](#)

¹⁵ [Anthony S. Fauci, M.D, et al, Covid-19 — Navigating the Uncharted, NEJM, February 2020.](#)

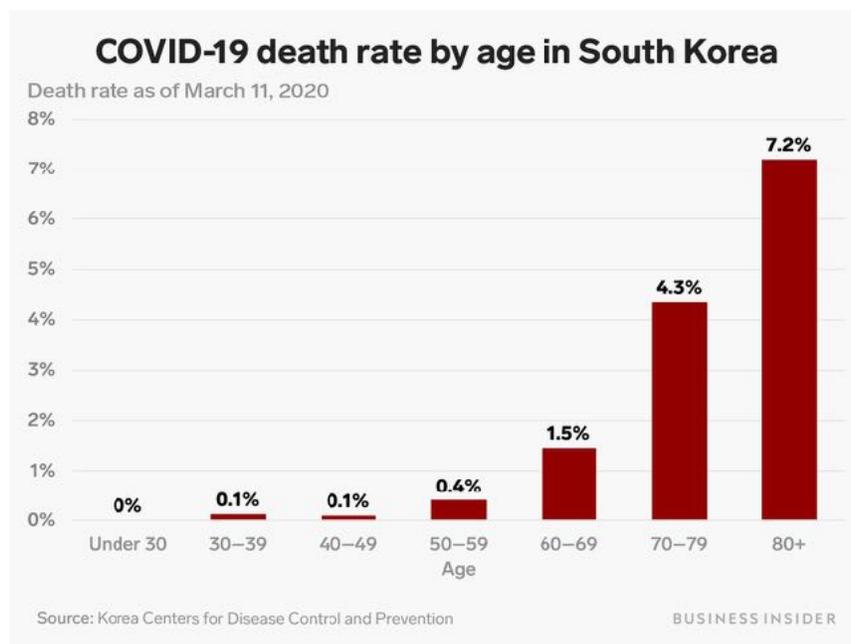
¹⁶ [John Power, Coronavirus: South Korea’s aggressive testing gives clues to true fatality rate, This Week In Asia, March 2020](#)

¹⁷ ¹⁷ [Andy Kiersz, Coronavirus death rates in South Korea reinforce a frightening pattern of how the disease affects older people, Business Insider, March 2020.](#)

Risk factors for Complications/Mortality¹⁸

- Advanced age
- Diabetes
- Hypertension
- Heart disease
- Kidney disease
- Pregnancy
- Immunodeficiency
- Immunosuppressive drugs

Risk for complication and death increases with increased age after 50, markedly after 60, and dramatically after 70. Here is the breakdown from data drawn from South Korea CDC.¹⁹



Age and compromised health are the big risk factors for complications and possible death from COVID-19 as they are for seasonal flu though CDC mortality rate for seasonal flu is .8% for those 65 or older. Those of us with these risk factors need the most support and protection and we all have a responsibility as a community to act in ways that minimize risk for this group.

This is the underlying reason that COVID-19 infection mortality has been high in Italy - an aged population.²⁰

¹⁸ [Fei Zhou, MD, et al, Clinical course and risk factors for mortality of adult inpatients with COVID-19 in Wuhan, China: a retrospective cohort study, Lancet, March 11, 2020.](#)

¹⁹ [Andy Kiersz, Coronavirus death rates in South Korea reinforce a frightening pattern of how the disease affects older people, Business Insider, March 2020.](#)

²⁰ [Andrea Remuzzi, Giuseppe Remuzzi, COVID-19 and Italy: what next?, Lancet, March 13, 2020.](#)

Community Preventative Measures / Mitigation Strategies

Community measures can support social distancing practices that decrease close interaction between people in order to decrease the incidence and rate of transmission. A critically important benefit of these strategies is to prevent a logarithmic increase in people needing hospitalization and avoid overwhelming resources needed for essential and critical care.

Mitigation Strategies Overview²¹

Individuals and families

- Stay at home if sick
- Decrease movement in the community and gatherings in the home

Schools/Childcare

- Identify students at risk for distance learning
- Limit large gatherings
- Limit inter-school interactions

Senior/Assisted living facilities

- Reduce large gatherings
- Limit programs with external staff
- Limit visitors (possibly screen visitors)
- Possible closure/quarantine

Workplace

- Implement telework programs
- Support employees to stay home if possibly infected
- Limit work-related gatherings
- Cancel non-essential work travel
- Cancel work-sponsored conferences and trade shows

Community and faith-based organizations

- Identify ways to serve those at risk/vulnerable
- Reduce activities and events
- Consider offering web-based events

Preventing Infection: General Recommendations

Basic health habits support natural immunity. These habits include eating a whole and fresh food diet that includes lots of fresh vegetables, making fresh vegetable juices, staying hydrated with water, getting adequate/more than adequate sleep, exercising regularly, especially outside, breathing deeply, and relaxing, too.^{22,23,24} For general health recommendations/direction refer to [Choosing Health: Dr. Force's Functional Selfcare Workbook PDF](#).

Letting yourself get “run down” is a sure way to compromise your resistance to infection and to be more likely to have a more severe case of COVID-19 should you become infected.

²¹ [Implementation of Mitigation Strategies for Communities with Local COVID-19 Transmission - this is a detailed plan for infection mitigation strategies from the CDC](#)

²² [CM Oliveira, et al, Sleep, immunity and shift workers: A review, Sleep Science, 2016.](#)

²³ [Michael Gleeson, The BASES Expert Statement on Exercise, Immunity, and Infection, Journal of Sports Sciences, 2011.](#)

²⁴ [Biondi M. · Zannino L.-G., Psychological Stress, Neuroimmunomodulation, and Susceptibility to Infectious Diseases in Animals and Man: A Review, Psychother Psychosom 1997.](#)

Preventing Infection: Some Science

Vitamin A

Vitamin A is essential to normal immunity and health and integrity of the mucous linings of the mouth, throat, sinuses, and lungs. Many people have a genetic variant (BCO1) that inhibits their ability to convert beta-carotene to vitamin A. People in this group need animal-derived sources of vitamin A rich foods (butter, cream, eggs, fatty meats, fish liver oil) or to take supplemental vitamin A.

Vitamin A directly enhances white blood cell immune response to viruses.²⁵ Vitamin A deficiency results in impaired immune response and impairs regeneration of epithelial cells in the mouth, throat, sinuses and lungs leading to increased mortality from infections.²⁶

Respiratory viral infections are commonly associated with vitamin A deficiency and lower vitamin A levels are associated with more severe cases of infection.²⁷ Research suggests Vitamin A supplementation leads to less complications and mortality from viral and other infections.²⁸

Vitamin C

Vitamin C enhances white blood cell production and function. Three controlled studies found high dose vitamin C (>6gm/day) useful in the prevention of pneumonia, a complication associated with COVID-19 mortality.²⁹ Vitamin C deficiency is associated with lung pathology complications from viral infection.³⁰

Vitamin D

Interventional and observational epidemiological studies provide evidence that vitamin D deficiency increases risk/incidence for influenza and respiratory tract infection. Additionally, vitamin D appears to decrease inflammatory response in lung tissue during viral infection.^{31,32} Stimulation of the vitamin D receptor protects against respiratory viral infections and increases antiviral responses of epithelial tissues.³³

²⁵ [RR Watson, et al, Enhanced survival by vitamin A supplementation during a retrovirus infection causing murine aids, Life Sciences, 1998.](#)

²⁶ [Charles B Stephensen, Vitamin A, Infection, and Immune Function, Annual Review of Nutrition, 2001.](#)

²⁷ [KM Neuzil, MD, Serum vitamin A levels in respiratory syncytial virus infection, Journal of Pediatrics, 1994.](#)

²⁸ [HC Gorton, DC, The effectiveness of vitamin C in preventing and relieving the symptoms of virus-induced respiratory infections, JMPT, 1999.](#)

²⁹ [Harri Hemilä, Vitamin C and Infections, Nutrients, 2017.](#)

³⁰ [Wei Li, et al, Vitamin C Deficiency Increases the Lung Pathology of Influenza Virus-Infected Gulo-/- Mice, Journal of Nutrition, 2006.](#)

³¹ [JA Beard, et al, Vitamin D and the anti-viral state, Journal of Clinical Virology, 2011.](#)

³² [AA Ginde, et al, Vitamin D, respiratory infections, and asthma, Current Allergy and Asthma Reports, 2009.](#)

³³ [AG Telcian, et al, Vitamin D increases the antiviral activity of bronchial epithelial cells in vitro, Antiviral Research, 2016.](#)

Zinc

Zinc supplementation was effective in treatment of acute lower respiratory tract infection and decreasing incidences of infections in the elderly.³⁴

Zinc supplementation decreases the morbidity of lower respiratory tract infection by limiting viral replication and decreased duration and severity of viral infection.^{35,36}

Selenium

Selenium deficiency is associated with increased viral virulence and has been suggested to play a role in “the emergence of novel viral diseases.”³⁷ Viral infections leading to lung pathology complications are more common in those who are selenium deficient probably due to impaired glutathione peroxidase production and increased lung tissue inflammatory response to viral infection.³⁸

Manganese

Manganese activates anti-viral innate immunity .^{39,40} Manganese-superoxide dismutase is a manganese dependent antioxidant enzyme that controls tissue inflammation and moderates tissue damage associated with viral induced tissue inflammatory response.

Bioflavonoids

Flavonoids, quercetin being a premier example, have been extensively researched for their antiviral activity especially with regard to impairing viral gene transcription.⁴¹ Quercetin is protective of lung epithelial tissues from the inflammatory processes of viral infection.⁴²

³⁴ [AS Prasad, Zinc: role in immunity, oxidative stress and chronic inflammation, Current Opinion in Clinical Nutrition and Metabolic Care, 2009.](#)

³⁵ [RO Suara, JE Crowe, Effect of Zinc Salts on Respiratory Syncytial Virus Replication, Antimicrobial Agents and Chemotherapy, 2004.](#)

³⁶ [D Hulisz, Efficacy of Zinc Against Common Cold Viruses: An Overview, Journal of the American Pharmacists Association, 2004.](#)

³⁷ [MA Beck, Selenium Deficiency and Viral Infection, Journal of Nutrition, 2003.](#)

³⁸ [MA Beck, Selenium deficiency increases the pathology of an influenza virus infection, FASEB Journal, 2001.](#)

³⁹ [C Wang, Manganese Increases the Sensitivity of the cGAS-STING Pathway for Double-Stranded DNA and Is Required for the Host Defense against DNA Viruses, Immunity, 2018.](#)

⁴⁰ [H Haase, Innate Immune Cells Speak Manganese, Immunity, 2018.](#)

⁴¹ [H Zakarayan, Flavonoids: promising natural compounds against viral infections, Archives of Virology, 2017.](#)

⁴² [P Kumar, Effect of Quercetin on lipid peroxidation and changes in lung morphology in experimental influenza virus infection, Intl J Exp Pathology, 2003.](#)

Ginger

Fresh ginger is effective against viral attachment and internalization on airway epithelium.⁴³ It has also been shown to increase macrophage (white blood cell) activity against viruses.⁴⁴ Ginger protects bronchial epithelia from the pro-inflammatory effects of viral infection.⁴⁵

Garlic

Garlic inhibits viral proliferation and penetration in cell cultures.^{46,47} Garlic is well known to control tissue inflammation by promotion of the antioxidant enzymes glutathione (GSH) and superoxide dismutase (SOD).⁴⁸

Nasal lavage

Nasal lavage is the irrigation of the nares and sinuses with saline sometimes combined with other ingredients - tinctures, nutrients, essential oils, etc. People with sinusitis are more likely to develop pneumonia than those without sinusitis and one of the main pulmonary complications associated with COVID-19 is pneumonia.⁴⁹ Nasal lavage results in improved outcomes for viral upper respiratory tract infections decreasing severity and shortening duration “probably in part by removing viruses and inflammatory mediators from and inhibiting viral replication in the nasal cavities.”^{50,51}

⁴³ [JS Chang, Fresh ginger \(Zingiber officinale\) has anti-viral activity against human respiratory syncytial virus in human respiratory tract cell lines, J Ethnopharmacology, 2013.](#)

⁴⁴ [N Imanishi, et al, Macrophage-Mediated Inhibitory Effect of Zingiber officinale Rosc, A Traditional Oriental Herbal Medicine, on the Growth of Influenza A/Aichi/2/68 Virus, American J Chinese Med, 2006.](#)

⁴⁵ [J Podlogar, Antiinflammatory Effects of Ginger and Some of its Components in Human Bronchial Epithelial \(BEAS-2B\) Cells, Phytotherapy Research, 2011.](#)

⁴⁶ [P Mehrbob, et al, Antiviral activity of garlic extract on Influenza virus, Iranian J Virology, 2009.](#)

⁴⁷ [P Mehrbod, Assessment of direct immunofluorescence assay in detection of antiviral effect of garlic extract on influenza virus, African journal of microbiology research, 2013.](#)

⁴⁸ [Z Geng, B Lau, Aged garlic extract modulates glutathione redox cycle and superoxide dismutase activity in vascular endothelial cells, Phytotherapy Research, 1999.](#)

⁴⁹ [F Bert, et al, Sinusitis in mechanically ventilated patients and its role in the pathogenesis of nosocomial pneumonia, European Journal of Clinical Microbiology and Infectious Diseases, 1996.](#)

⁵⁰ [D Rabago, A Zgierska, Saline Nasal Irrigation for Upper Respiratory Conditions, Am Fam Physician. 2009.](#)

⁵¹ [H Ao, et al, Efficacy and mechanism of nasal irrigation with a hand pump against influenza and non-Influenza viral upper respiratory tract infection, J Infectious Diseases Immunity, 2011.](#)

Regulating flora in the mouth and throat

The biome/flora of the nose, throat, and sinuses play a role in resistance to infection.⁵² Oral probiotics show protection from upper respiratory infections.⁵³ Oral probiotics are now designed for the purpose of populating the mouth, throat, and sinuses with healthy flora.⁵⁴

Get outside for fresh air and sun

Fresh air is typically cleaner and naturally kills off viruses and bacteria and sunshine is antiviral. Treating patients was a strategy successfully used during the 1918 Influenza Pandemic. The patients got better faster and with less complications and the doctors and nurses were less likely to become infected.^{55,56}

Chiropractic Care

Chiropractic care has distinct and measurable beneficial effects on the autonomic nervous system (ANS).⁵⁷ The immune system is regulated in large part by the ANS and white blood cells show improved function after chiropractic adjustment.^{58,59} Upper cervical adjusting increases CD4 cells, essential helper cells of the immune system, in HIV positive patients, indicating an immune-stimulating effect from chiropractic care.⁶⁰

Salivary secretory IgA is important first defense from viral infection and is promoted by balanced ANS tone.⁶¹ Secretory IgA also protects the epithelial lining of the lung against viral infection.⁶²

⁵² [S Chinnu Ann, Comparison of Microbiota of Throat in Children with Recurrent Tonsillitis and Asymptomatic Children: A Pilot study, Christian Medical College, Vellore, 2017.](#)

⁵³ [V Campanella, et al, Oral probiotics influence oral and respiratory tract infections in pediatric population: a randomized double-blinded placebo-controlled pilot study, European Review for Medical and Pharmacological Sciences, 2018.](#)

⁵⁴ <https://www.bioticsresearch.com/products/children's-ent-pro®>

⁵⁵ [Richard Hobday, Coronavirus and the Sun: a Lesson from the 1918 Influenza Pandemic, Medium, March 2020](#)

⁵⁶ [Schuit M, The Influence of Simulated Sunlight on the Inactivation of Influenza Virus in Aerosols, J Infect Dis. 2020.](#)

⁵⁷ [Welch A, Boone R, Sympathetic and parasympathetic responses to specific diversified adjustments to chiropractic vertebral subluxations of the cervical and thoracic spine, Journal of Chiropractic Medicine, 2008.](#)

⁵⁸ [MJ Kenney, CK Ganta, Autonomic Nervous System and Immune System Interactions, Compr Physiol. 2014.](#)

⁵⁹ [Brennan PC, et al, Enhanced phagocytic cell respiratory burst induced by spinal manipulation: potential role of substance P., JMPT, 1991.](#)

⁶⁰ [J Selano, et al, The Effects of Specific Upper Cervical Adjustments on the CD4 Counts of HIV Positive Patients, Chiropractic Research Journal : Volume 3, Number 1.](#)

⁶¹ [GH Carpenter, et al, Preganglionic parasympathectomy decreases salivary SIgA secretion rates from the rat submandibular gland, J Neuroimmunology, 2005.](#)

⁶² [RH Waldman, et al, Specificity of Respiratory Secretion Antibody against Influenza Virus, J Immunology, 1970.](#)

Preventing Infection: Specific Recommendations

Wash your hands!

You will be exposed from touching infected surfaces. Just assume this is true. Always wash your hands before touching your face or eating.

Diet

[Mediterranean pattern diet](#) (lots of vegetables!), consider fresh vegetable juice (preferably use a masticating juicer), drink water (best filtered and chlorine and fluoride free; [Berkey water filter](#)), use natural Celtic sea salt on food. Experiment with including fresh garlic into cooking.

Eat organic (preferably grass-fed) butter, whole fat dairy, cream, eggs (free-range) for vitamin A and salmon, small fish, and whole eggs for vitamin D.

Make sure to eat lots of fruits and vegetables for vitamin C. Nuts, especially Brazil nuts, are good sources of zinc, but meat, seafood, and eggs are more concentrated. Oysters are the highest food source of zinc.

Whole grains, nuts, leafy vegetables, and teas are high in manganese as are bone broths and stocks. Brazil nuts are the champion, by far, for selenium and I recommend eating a few Brazil nuts (~3-4 a day), though selenium is found in meats, seafood, and whole grains.

Make sure to get bioflavonoids in the diet. Broccoli, red and yellow onions, cherries, and grapes are important sources. The white pulp of citrus (lemons, limes, grapefruit, oranges, tangerines) and bell peppers. Include some citrus in the diet by peeling and eating the whole fruit to benefit from the white pith high in bioflavonoids.

Homemade ginger tea is a wonderful way to benefit from ginger and get more bioflavonoids in your diet.

Fresh Ginger Root Tea

Make a pot of tea to have available; it keeps remarkably well.

- Pot of filtered water - from a cup to the whole pot to last the day
- Fresh whole ginger washed well and thinly sliced - experiment to find out how strong you like it
- Citrus sliced and put in whole (tart and full of bioflavonoids!)
- Boil for 5-20 minutes - the longer you boil it, the stronger it gets
- add a little honey or maple syrup to taste

Exercise

Move. Take a walk, hike, stretch, yoga, qi gong/tai chi, aerobic exercise, strength train. The key is enough, but not too much. You want to build up, not break down. Do something every day.

One way you can tell you're not doing too much exercise is to keep a log of your pulse in the morning. If your pulse jumps up significantly, you may be exercising too hard. Overtraining is a very common cause for getting "run down" and getting sick. Don't do it!

Aerobic base training is moderate exercise for a minimum of 45 minutes. It increases energy efficiency and improves your health including resistance to infection. The heart rate for aerobic base training is calculated from [The 180 Formula](#). This will feel too slow to improve your health. Stick with it - there is a lot of research behind this approach. You can use walking, swimming, biking, rowing....there are a lot of options for doing aerobic base training.

Sleep

Get more than you think you need. A little more and see how you feel. Go to bed around 10pm or earlier. You will probably feel better and your immune system will be happy.

Breathe

Breathe more deeply and regularly. Learn how to breathe in and out through your nose, if you haven't already. Nose breathing provides some protection from infection over mouth breathing.

Breathe so deeply you can feel your diaphragm move or, better feel the floor of your pelvis move. Learn to breath all the way out. Doing this gets rid of more of the residual air in your lungs.

Being Engaged

Self-Quarantine/Isolation

You don't have to self-quarantine unless you have evidence of being exposed in a way that makes you reasonably certain of becoming infected. The standard period for this is 14 days.

If you have contracted the infection, you need to isolate to minimize exposing others for the duration of having symptoms - fever, dry, cough, shortness of breath - usually ~14 days.

Masks are for people with the infection to use so that they aren't broadcasting the virus from coughing or sneezing.

Getting outside, taking a walk/walking the dog, answering the door, signing for a delivery...

...these are fine. Isolation is avoidance of close proximity or prolonged contact.

Stay engaged. Interact as able - phone, screen, email/mail, etc.

Being out and about and being aware

For people who don't need to self-quarantine or isolate, get out and about! Live your life.

Just be aware. Avoid crowds where you end up shoulder to shoulder. You can still go out to eat, work, meet at the coffee shop, and live your life. Living in fear won't help you; living consciously and taking reasonable precautions will.

And, wash your hands before you touch you face. Be aware when eating or drinking to not touch utensils, cups, glasses, etc. where they will touch your food, drink, or lips. Consider washing your hands before eating or drinking when you can reasonably do so.

Nasal Lavage

The most effective method for nasal lavage based on clinical experience (35 years in practice) is the Neti pot. There are two types of neti pot, a taller version that looks like a teapot and a squat version that looks like an oil lamp (Aladdin's lamp) .

The reason the squatter version works better is that it provides more flow pressure. If you're not able to find this type of Neti pot, you can [order online](#).

Use this method once or twice a day during periods of possible virus exposure for prevention.



Making the Nasal Lavage Solution

- Use a 16 oz. glass jar with a lid to mix the solution
- Boiled filtered water (chlorine and fluoride free) cooled to lukewarm - 12 ounces
- 1/8 - 1/4 tsp of Celtic sea salt (don't use commercial salt)
- 1 drop of tea tree oil
- Put the lid on the jar and shake vigorously to emulsify the tea tree oil

Note: If the tea tree oil is too strong, you can mix the oil in 12 ounces filtered water, shake to emulsify, pour out half the solution and then refill to 12 ounces. Voila! Half a drop of tea tree oil.

To improve the nasal lavage, add vitamin A, zinc, and iodine to the basic solution. This improves health of the nasal mucosa. The same solution can be used as a solution for gargling. For this protocol, I recommend using the same sources I use in practice - you can get these ingredients by calling The Elements of Health (541-633-4633) or [email](#).

- Biotics Research Liquid Iodine
- Biotics Research Aqueous Zinc
- Biotics Research Bio-AE-Mulsion

Note: **Do not** use the Liquid Iodine if you're allergic to iodine or have thyroid issues that contraindicate the use of iodine.

Using the Neti Pot for Nasal Lavage

Position

- Lean over a sink so your head is over the basin.
- Rotate your head to one side and gently insert the spout of the Neti pot into the upper nostril so that it forms a comfortable seal. Avoid pressing the spout against the "middle", or septum, of the nose.

Lavage/Irrigation

- Breathing through your mouth, raise the nasal irrigation pot so that the solution enters the upper nostril. The solution will soon drain from the lower nostril.
- When the nasal pot is empty, exhale through each nostril to clear excess solution and mucus. Use a tissue to clear nasal passages.
- Repeat on the other side.

Here is a [video](#), if you need more direction.

Neti Pot Care

Wash the Neti pot after irrigation. Always mix the nasal lavage solution as you use it and keep the mixing jar clean and dry before use.

Mouth Washing and Gargling

Gargling with salt water is a known method for decreasing the risk for viral infection and improving outcomes from infection. Viral replication is inhibited by salt, epithelial cells have an innate immune mechanism promoted in the presence of salt, and DNA, RNA, enveloped and non-enveloped viruses are all inhibited in the presence of NaCl.⁶³

⁶³ [Ramalingam S, et al. Antiviral innate immune response in non-myeloid cells is augmented by chloride ions via an increase in intracellular hypochlorous acid levels. Sci Rep. 2018.](#)

For mouth washing solution, you can use the same solution as for the Neti pot with the exception of being able to use more salt (~1tsp). When gargling relax your throat and gargle as deeply as can comfortably. Aggressively and completely swish the solution around your mouth, teeth, and gums. Avoid drinking or eating for a while when done to optimize the benefit.

If you have a history of chronic strep infections, tend to having sinusitis and commonly get colds and flu, consider using a specifically designed [oral probiotic](#) for a bottle or two to inoculate your mouth, throat, and sinuses with healthy infection-resistant flora. It's called Children's ENT-Pro, but don't let that fool you, I use it more for adults than kids. Call the office (541-633-4633) or [email](#) to learn how to buy this oral probiotic.

Get Chiropractic Care

By improving autonomic nervous system (ANS) tone and regulation, chiropractic care supports resistance to infection and resilient response to recovering from infection. Good ANS tone as measured by heart rate variability is considered a measure of survivability

Nutritional supplementation for prevention

Cod liver oil (vitamin D)

This is an excellent way support healthy vitamin A and D levels. Carlson and Nordic Naturals are good sources for cod liver oil. These forms come flavored and are easy to take; ~1TB a day for young kids and ~2TB a day for teens and adults.

Getting tested for vitamin D is a good idea to make sure you're sufficient. Vitamin D deficiency is a critical marker for immune sufficiency. For optimal immune function, it is good to be 50 ng/mL or above.

If you have low vitamin D levels, it will take more than the cod liver oil to get the vitamin D levels built up. Most of the vitamin D supplements - even prescription forms - aren't very effective. If you need to raise your vitamin D levels, I recommend Biotics Research Bio-D-Mulsion Forte.

Multi-mineral formula

Supplement zinc (~30mg) , selenium (50-60mcg), and manganese (~2mg).

Take minerals after meals. It is best to take zinc (~15mg) at lunch and dinner as zinc lowers cortisol - a stress hormone - and improves immune response, generally, and secretory IgA, specifically.⁶⁴ This effect will balance the circadian rhythm of cortisol and improve sleep and adrenal function, hereby, improving robustness and resistance to infection.

Vitamin C

More isn't better, unless you do become infected. Take ~200-1,000mg a day. It doesn't need to be an exotic or expensive form.

Immune Support Formula

This could be a paper in itself, but I'll "cut to the chase." My wife and I are taking Biotics Research [Bio-Immunozyne Forte](#), 1 capsule twice a day, and I'm recommending it for my patients. Kids take one a day. It takes care of the minerals and the vitamin C - through professionals/physicians only. Available through the office (541-633-4633) or [email](#) or through physicians/professionals carrying Biotics Research products.

⁶⁴ [Brandão-Neto J, et al. Zinc acutely and temporarily inhibits adrenal cortisol secretion in humans. Biological Trace Element Research, 1990.](#)

COVID-19 Infection Selfcare: General

The recommendations above for prevention are helpful for you to continue if you become infected - adding isolation, more rest and sleep, staying hydrated, monitoring temperature, and following any specific recommendations by your primary doctor.

There are certainly specific treatment and selfcare protocols that go beyond the recommendations herein. However, the specifics will depend on the individual and it would be irresponsible to make recommendations that you might rely upon that wouldn't be appropriate based on your health and specific needs.

If you believe you have become infected with COVID-19, contact your primary physician!!

Here is a [flyer from the CDC](#) that directs you what to do if you believe you are infected and has directions on taking and charting temperatures.

If you are 50 or older, the risk for complications increases, and more so with each increasing decade of life. It is a good idea to monitor yourself for complications and be able to report useful data to your physician.

Make sure to have a blood pressure monitor, pulse oximeter, and thermometer - available at pharmacies. Keep a daily log of your morning and afternoon temperature, pulse, breathing/respiratory rate, oxygen saturation, and blood pressure.

Update your primary physician if -

- temperature is 103 degrees or greater (102 degrees or greater with lung/heart disease)
- breathing rate at rest is 24 or more
- pulse at rest is consistently 100 or more
- blood pressure shows a sudden increase or an increasing trend
- oxygen saturation shows a trend of lower and lower numbers
- oxygen saturation at rest is 90 or less

Note: Oxygen saturation of 85% or less is a medical emergency and indicates the need for immediate medical attention

Summary

COVID-19 is not "just the flu." It has a significantly higher mortality rate than annual seasonal flu and social isolation and transmission prevention practices/precautions are warranted.

There is, however, much hype and hysteria and, hopefully, this paper will provide you with a reasonable strategy to avoid contracting a COVID-19 infection.

If you are 50 or older, I strongly urge you to use the ideas in this paper fully. Be clear that your risks from contracting the virus are greater and prevention is your most powerful tool to stay safe!

May the information in this paper serve you and others. Please share it freely. Please, too, let me know if you find any errors here that may have been overlooked during editing. My intention is for this paper to be as accurate and useful as possible. Yours in Health, Mark Force, DC