

The Facts about the Flu, How to Prepare for it, and How to Fight it



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The flu season is upon us, and whatever form it takes this time around, it's a health threat that needs to be minimized to the extent possible. I will take this opportunity to address combating the flu generally and provide facts about H5NI, or "bird flu," which has generated so much media attention and fear.

With any communicable infectious disease, there are two variables that determine its effect on the human population: 1) rate of communication (transmissibility) 2) rate of mortality among the infected (lethality). In terms of flu defense, this translates to: a) how to avoid infection b) how to survive infection. "Virulence" should be conceived as the product 1 and 2, or, the capacity of a pathogen to harm the human population. For all of the medical advances in treating sickness, against the lethal virus, medicine is largely unavailing. However, this does not mean that people in general are powerless in this regard. To the contrary, there are steps we can take to decrease the probability of infection and increase the probability of survival should infection occur. I will describe these measures specifically, after offering some general thoughts on the avian flu that I hope will put the matter in an instructive context and help rectify various misconceptions presently circulating along with much accurate information.

As an initial matter, it is important to understand that deadly pathogens have been around for a very long time. The bubonic

plague came and went over a period of centuries. Even today, the same bacterium responsible for that illness kills a few thousand people each year in areas without access to antibiotics. The same is true of influenza, which is unaffected by antibiotics because it is caused by a virus. Furthermore, viral mutation and the passing of viruses directly from animals to humans is not a new phenomenon, though it appears to have increased in recent decades with outbreaks of hantavirus, SARS, monkeypox, and most recently avian flu. Infectious agents have killed far more people than all wars combined, and this was graphically demonstrated during and after World War I, by the flu pandemic of 1918. Soldiers on the battlefields who thought they were witnessing unimaginable loss of life were to discover when they returned home the loss of life a pandemic can cause, which dwarfed the death toll of the war.

Viewed historically, we see that killer germs are something humanity has always had to contend with. As conditions in many parts of the globe have changed drastically with the advance of technology, it has both favorably and unfavorably altered factors relating to viral transmission and the prospects for successful immune response. Unfavorably, transoceanic travel can deliver viruses to the doorstep of a continent in the span of time it takes board and disembark an airplane. Favorably, extraction of nutrients from food and availability of herbal extracts provides means of boosting host immunity. Accordingly, we are in a worse position regarding transmission and in a better position regarding ability to survive infection.

Current indications are that H5NI may have a mortality rate approaching 50%. This would make it more lethal than the flu pandemic of 1918 and on a scale of lethality with the bubonic plague (though if they had

antibiotics back then, “the plague” would not have been a public health threat). The fact that “humans will have no immunity to it” is properly understood not to mean that all human immune systems will be unable to mount an effective response, but rather that the statistical possibilities for mortality are far greater because “no one is yet immune.” In other words, with conventional flu not all people who get exposed become infected and develop symptoms whereas if bird flu becomes communicable among humans essentially everyone who gets exposed will become sick within 1-5 days medical experts say. Host immune status (in pathology terminology, the infected person is the “host” of the virus) largely determines, among the infected, the survival rate. Age and preexisting medical condition bear on this, as well as genetics and, most importantly from a practical standpoint, nutrition.

If all this sounds scary, of course it is. Historically, infectious disease outbreaks have engendered more fear and hysteria in people than anything else. But consider this: even if the mortality rate of an avian flu outbreak were 75%, and there’s no indication that it would be nearly that high, then if four million became infected, a million people would get over it. I say this not to downplay the magnitude of such a tragedy, rather to demonstrate the capacity of our immune system to meet the challenge imposed by even the most highly virulent strain of influenza. And, contemporary man and woman have assets at our disposal with which to confront the flu that our ancestors did not during the 1918 flu pandemic.

Historically, the human immune system has fought the flu in a state of low nutrition resulting from low food intake during infection. Appetite is suppressed as a defensive mechanism to conserve energy otherwise used to digest food, in order that

more energy can be allocated to immune processes. Consequently, optimal nutrition is impossible during infection unless you take dietary supplements. The worst conceivable time to have sub-optimal nutrition is when you’re trying to overcome avian flu infection, because if there’s one thing we know for certain, immune status and nutritional status are tightly connected.

Nutrition-wise, there are two tiers of defense correlating to different supplemental dosage levels: pre-infection and during infection. The objective of pre-infection nutrition is to ensure maximal resistance at the time of infection. Once infection begins, the objective is to selectively provide higher dosages (than would be appropriate on a constant basis) of nutrients that acutely enhance immune function. Dietary supplements make it feasible to do this, without the systemic burden of thousands of calories that the body neither has an appetite for nor can accommodate without hampering a besieged immune system.

Let’s now address pre-infection nutrition along with measures to avoid infection, then turn our attention to what can be done nutritionally to reinforce the immune response during infection.

1. Don’t overtrain – The stress of excessive exercise reduces immunity.
2. Don’t train at night – The dip in immunity that occurs in the immediate aftermath of intensive training is deepened and prolonged by fasting - when you’re asleep, you’re fasting.
3. Do exercise – Proper exercise has a net positive effect on immunity. All forms of exercise are associated with improved circulation and the circulatory system is the

logistical infrastructure through which the immune system operates. At the first sign of infection, discontinue exercise.

4. Don't smoke, don't drink to excess – Both smoking and alcohol deplete vitamins, predisposing you to critical deficiencies. Smoking, and air pollution generally, taxes vitamin C reserves; alcohol takes-out B6, zinc, and other nutrients.

5. Don't eat to excess – Digesting excessive amounts of food taxes the body's energy reserves. This, especially when combined with extreme blood sugar fluctuations associated with diets high in carbohydrate, stresses the body and creates a window of reduced immunity similar to that described in 2.

6. Consume sufficient protein, keep carbs down – Always good advice, but it's even more important with respect to the flu. The immune system is made-up of protein. Once flu is contracted, appetite drops so it's important to have good protein status at the time of infection. High insulin levels negatively influence inflammation and immunity.

7. Get seven hours of sleep and maintain circadian rhythm – Everyone knows the importance of adequate sleep for optimal immune function, but you may not fully appreciate the importance of getting that sleep within the normal sleep-wake cycle. Immune-modifying pituitary and thymic hormones, and the endocrine system in general, is under circadian influence; and nightshift workers have a higher incidence of sickness.

8. Don't self-infect - Flu is an airborne virus. Though it is communicable through the air, you're not likely to contract it outside in the open air. Poorly ventilated close quarters substantially heighten risk of exposure. Also, you can infect yourself by touching an infected

surface then transporting the virus to your face. During a flu outbreak your susceptibility is from the neck up, especially the nose, which is the primary porthole of entry for influenza. Wash hands frequently, and condition yourself not to touch above the neck under any circumstances without first washing your hands. Frequent hand washing also helps you avoid infecting others, particularly at such time as you may be asymptotically contagious (a few days before and after you begin and cease feeling sick).

9. Take a multivitamin complex containing significant dosages of immune factors - Many "one a day" multivitamins contain insignificant amounts of vitamins and minerals critical to optimal immune function. This is as good a time to say this as any: you can't get anywhere nutritionally taking one pill a day, especially where optimal immunity is the top priority. A single large pill can't hold more than about one gram of nutrition. Considering vitamin C only, I'm sure every naturopath and alternative health practitioner would concur that everyone should be taking one gram minimally. Accordingly, a helpful guideline for choosing a multivitamin is a serving size greater than one pill. The nutrients most important for immunity are: vitamin A, vitamin C, zinc, selenium, and bioflavonoids. One level below in importance is: vitamin E, B-complex, and N-acetyl cysteine.

During flu season, I recommend the following dosages to maintain high baseline immune status.

Vitamin C – 3 grams. Because C is water-soluble, you absorb a higher percentage when you divide the daily dosage. 1000 milligrams 3 times per day will result in higher absorption than taking 3000 milligrams in one dose. For immune function (including allergies) vitamin C works best when taken with bioflavonoids,

with which it interacts synergistically. The best C/bioflavonoid supplement per cost that I've come across is by NOW brand, "C-500 Complex." You get 250 tablets containing 500 mgs. of C and 100 mgs. of bioflavonoids for \$11.99. That ratio of bioflavonoids to C is a bit lower than ideal, and if you want more bioflavonoids I'd recommend "Citrus Bioflavonoid Caps" by Twinlab which costs \$14.95 for 100 capsules each containing 700 mgs. of bioflavonoids. Fruits and vegetables are rich in bioflavonoids, so you don't need a bioflavonoid supplement if you are targeting them in your dietary selections.

Vitamin A – No adult should be taking less than 5000 i.u. of supplemental vitamin A (retinol) per day year-round. This amount is usually obtainable in a high potency multivitamin. 5000 i.u. is a bare minimum that takes into account the additional vitamin A you derive from beta carotene. I recommend 25,000 units of beta carotene (that's approximately 6 milligrams - A and E vitamins are typically represented as units or i.u. rather than milligrams). In addition to exerting immune-enhancing properties of its own, beta carotene is a vitamin A precursor; approximately 20% of beta carotene is converted in the body to vitamin A. Therefore, if you're not taking beta carotene, 10,000 units of supplemental vitamin A is recommended.

Zinc – Men should take 50 mgs. per day, women 40 mgs. plus an occasional booster. Most multivitamins contain no more than 30 mgs., which is fine outside of flu season. During flu season, men and women are advised to take additional zinc. Unlike vitamins B and C, zinc can be stored to some extent in the body so men can take an extra 30-milligram pill, in addition to 30 mgs. in a multivitamin, four times per week – women twice per week. This brings weekly zinc supplementation up to an average of close to 50 mgs. per day for men, 40 mg. per day for women. Many forms of zinc are available.

Zinc monomethionine appears to have the highest bioavailability, and Soloray sells zinc monomethionine at a reasonable price.

Selenium – 400 micrograms. The best form of selenium is methylselenocysteine, though if you can't get that, selenomethionine is acceptable. Selenium selenite and selenium selenate are a small step down from selenomethionine in terms of bioavailability and are a lot better than nothing.

Vitamin E – Vitamin E dosages should be considered with reference to selenium, because they work together as lipid-phase antioxidants. Selenium is a bit more important for immunity, so during flu season a somewhat higher ratio of selenium to E is appropriate. You are not likely to find a multivitamin with more than 400 units of vitamin E, and considering the many benefits of vitamin E at dosages of 400 units and greater, I believe that's the minimum people should take year-round. 600-800 units is a better dosage year-round and during flu season. Because E is fat-soluble and can be stored in the body, you can take booster doses occasionally, as described above in relation to zinc, in order to achieve a daily average of 400-800 units – though there's nothing wrong with simply taking 800 units per day, especially during flu season.

B-Complex – B6 is the most important B vitamin for immunity, but the Bs work together and should be taken together. Optimal B-vitamin ratios are a discussion onto itself; suffice to say B-vitamin supplements that contain the same amount of each B vitamin are not optimal, though this is the most prevalent B-complex formulation on the market. With this in mind, and in the interest of keeping matters as simple as possible for present purposes, I recommend a B-complex containing at least 50 mgs. of each B-vitamin. A more potent and generally superior B-complex supplement, with roughly sensible

ratios, is “Complete B-Complex” by the Life Extension Foundation. “B-Right” by Jarrow costs less, though B5 and B1 are lower than ideal in my opinion. B-Right contains pyroxidal 5-phosphate, however, which is the most bioactive form of B6.

N-Acetyl Cysteine - NAC is a remarkable nutrient, serving as a detoxifier and antioxidant. NAC is also involved in immunity and early successes using NAC to treat AIDS patients, and its apparent ability to inhibit HIV replication makes it, possibly, a major weapon against the flu. There hasn't been enough follow-up research to determine the extent of NAC's immune-enhancing applications, but based on the research to date I believe NAC is more likely than not to help against the flu. The only drawback to taking NAC is price; it's relatively expensive. Also, NAC dosages should be set in relation to vitamin C. You shouldn't take more than half as much NAC as you do C, so one disadvantage to taking less C is that you must take less NAC. Conversely, 3 grams of vitamin C allows you to take 1 gram of NAC, which I would consider an appropriate daily dosage during flu season.

At such time as infection occurs, the amounts and dosing schedule change by a factor of three.

liquid multivitamin – 3 dosages (see below)

C – 9 grams

A – 30,000 i.u.

Beta Carotene – 75,000 i.u.

Zinc – 150 milligrams

Selenium 1,200 micrograms

E – 1200 i.u.

B Complex – at least 150 milligrams of each

NAC – 3 grams

Upon first appearance of symptoms, it is vital you respond with the speed of a blink of an eye. The avian flu kills in days, so there's no

time for indecision or delay the moment you sense the onset of infection. Viral replication is exponential, and studies show that the degree of success of holistic intervention is correlated with the timing of intervention. Immediately upon detecting infection take a large dose of Echinacea and triple-up on dosages as outlined above. This is designed both to help ensure that the immune system is operating at full strength when the virus appears and to try to score an early knockout, or, more realistically, slow its proliferation. When the virus first hits, it's weak and you're strong. Within 24 hours you'll be bed-ridden and the virus will be multiplying like wild fire. Vitamin C and zinc, at megadose levels, have a direct toxic effect on certain viruses. C or zinc won't stop a super-aggressive and highly efficient virus like influenza, but may disrupt its progression. The more time the immune system has to identify a pathogen and develop antibodies, before systemic failure, the better. Nothing is more important than vitamin C when sick; immune cells depend on it and infection rapidly depletes it. The fact that bowel tolerance to vitamin C increases during infection, permitting higher dosages to be administered, demonstrates the enhanced need for vitamin C at such time.

After the initial triple dosage, take one-third of the triple-dosage every five hours such that daily dosage equals the initial triple dosage. At the onset of illness, to lessen pill load and assist absorption, switch to a liquid multivitamin. I recommend “Miracle 2000” by Century Systems or a similar formula. To facilitate vitamin C absorption, more frequent dosing of 1-2 grams of C is advised.

In addition to the vitamins and minerals enumerated above, I recommend the following.

Garlic/Onion (raw) – Garlic and onion are among the plant genus *Allium* and contain allicin, a substance with medicinal properties and a history of therapeutic applications.

Indigenous populations rubbed raw onions on the skin as insect repellent, and allicin kills fungus. In view of research establishing the immune-stimulatory effect of these two plants, they may be similarly offensive to viruses as they are to insects and fungi, and one hypothesis holds that the sulfurification of the blood ensuing upon absorption creates a less hospitable medium for viral replication. You need not eat them to excess, but you'll need a lot more than a nibble. The allicin content of onion and garlic is low on a per-gram percentage basis. Eat it until your eyes water and your mouth burns, then eat more, and start at the earliest possible stage of infection.

Water/Bioflavonoids - Hydration is exceptionally important during infection, especially as body temperature rises. Fruit contains bioflavonoids, but once flu hits, you'll have no appetite and eating onion and garlic is a difficult enough task in that condition. Therefore, I recommend a solution of half water, half not-from-concentrate fruit juice. Orange and grapefruit have the highest concentration of citrus bioflavonoids, which beneficially modify immune function in conjunction with vitamin C – I advise combining them. Juice is also high in potassium, and potassium is of central importance for maintaining cellular hydration. Drink not fewer than 5 glassfuls of this mixture throughout the day, each time accompanied by at least a gram of vitamin C.

Protein supplements – Protein is composed of amino acids. Amino acids, particularly glutamine, fuel the immune system. Severe infection heavily taxes protein reserves, resulting in muscle wastage. However, heavy food-protein consumption taxes energy reserves, impeding immunity. This raises the possibility that protein supplements would be advantageous during flu infection. Whey protein specifically has been shown to exert immune-enhancing properties. Many people are allergic to whey protein powder (or soy, or

casein) however, and this potentially makes it a liability when the immune system is coping with the flu. If glutamine is number one, the amino acids arginine and lysine are not far behind in immunologic importance, and multi-gram dosages have been shown to positively alter the course of some types of infection. However, at the dosages necessary to get this benefit you run a risk of gastric upset, diarrhea, and associated malabsorption and hydration complications. The prudent course would be to add a modest amount of carb-free protein powder (soy, whey, or casein) to your water-juice mixture, amounting to not more than 20 grams per serving. Reducing that amount and adding 3-5 grams of glutamine would produce a superior amino acid profile, and the same applies for adding arginine. Since different folks have different tolerance levels, I recommend experimenting with multi-gram amino acid dosing (on an empty stomach) to get an idea of what your stomach can handle. Bowel tolerance is likely to be higher for glutamine when sick because, as is the case with vitamin C, glutamine is depleted in the immune system's effort to defeat the virus.

Note - To make stomach upset less likely when taking protein/amino acid supplements or other nutrients, eat a small amount of something low in sodium and easily digestible. Banana and baby food fulfill these criteria, and even half a banana taken with nutrient supplements may help offset the risk of gastrointestinal distress while increasing nutrient absorption. With many nutrients, particularly vitamin C, bowel tolerance is acquired, which is one reason why it is important to be taking supplements during flu season prior to infection. This prepares the way, by activating vitamin-C-utilizing enzyme systems, for more efficient uptake and assimilation when dosages are subsequently raised upon infection. Most of the more impressive studies demonstrating therapeutic nutritional applications use intravenous delivery because it is much more efficient and

much higher serum nutrient levels can be achieved. The health care systems in many countries are not oriented toward holistic approaches to treating illness, however, and thus oral supplements are the only practical option. Oral supplements work well enough generally, because you can take higher dosages to compensate for a low rate of intestinal absorption. But during severe infection, when the highest dosages are needed and appetite is nonexistent, bypassing the stomach and intestines substantially enhances therapeutic potential.

Immune-enhancing herbs - In descending order of noteworthiness: echinacea, astragalus, goldenseal. Echinacea is particularly noteworthy because its effects mainly pertain to respiratory illness and the avian flu cripples the respiratory system. The problem with these herbs is not “do they work?” – the evidence is plain that while the effect may vary from person to person, and depend on amount and timing of dosing, these herbs positively affect immune response in the short term or at least have the potential to do so. The problem is that many of the herbal preparations on the market, and used in some studies failing to find an immune-enhancing effect, lack in purity or potency. Extraction and standardization variables make buying these products a more uncertain proposition than buying vitamins and minerals. The solution is to go to the source: the whole plant. It’s not easy to find, but some organic foods stores sell it and you can use it to make echinacea or astragalus tea. Otherwise, buy capsules or liquid extract from a company you trust. At worst, you won’t get enough of the bioactive component to make a difference in the duration or severity of infection. But considering there’s nothing to lose except a few dollars, not to make use of herbs like echinacea, which may help your immune system cope with the flu, seems rather imprudent at such time as you know you’re infected.

The techniques described above have produced notable success at mitigating severity of flu infection. It’s anybody’s guess how they will work against the avian flu, and these statements have not been evaluated by the FDA. Given the irrefutable linkage between immunity and nutrition, and the absence of a downside or ready alternative, everyone would be advised to begin preparing nutritional provisions.

Regardless of the differences that divide us, we share the common experience of flu infection. The more virulent forms of ordinary flu rarely kill healthy, well-nourished individuals but can make you feel so awful you wonder whether you may be dying. The bird flu will be much worse, for those who become infected. But even during a pandemic, millions of people don’t get exposed and don’t experience the circulating contagion in any way, shape, or form. For those who do, at the height of fever, you must remember that, statistically, even in a worst-case scenario, you’re no more likely to die than to survive. And are there actions we can take to advantageously tip the scales of probability such that in the event of infection it’s substantially more likely than not that our immune system overcomes the avian flu so it can be looked back upon as a terrible few days followed by joyous recovery and a newfound appreciation for the blessings of good health? I believe the answer is affirmative, and beyond that they’re no guarantees.

Influenza has always been with us, at one degree of virulence or another. The latest and most serious threat, the H5N1 bird flu, is coming sooner or later – and on this point we all can agree with the US president. But for all the reasons stated, this should not be a cause of undue alarm. Rather, we should take reasonably calculated measures to avoid flu infection. And where avoidance efforts fail, we should resolutely deploy all potentially helpful resources in order that we may engage

the flu effectively, and individually and collectively overcome this lethal but not undefeatable adversary of human health.

Q & A

Should I get a flu shot?

Yes. Along with antibiotics, vaccines have saved more lives than anything. Antibiotics are remedial in nature whereas vaccines are preventative. Antibiotics are ineffective against viruses, and there is not currently a vaccine for avian flu and likely won't be this season. Getting vaccinated for other flu viruses is advisable because it can protect against co-infection. Secondary "opportunistic" infection is always a concern when sick. When the immune system is engaged in dealing with major infection, the resources to cope with infection from a different source are less and consequently the health risk of multiple exposure is compounded. It is easy to imagine that infection with both avian and ordinary flu would intensify the danger, and flu vaccination helps prevent this. Availability is another matter, because as Time magazine (Oct. 17) reports, "even common flu vaccines are notoriously unprofitable – among other things, they have to be thrown out each year – which is why U.S. companies have all but abandoned the field." The consequences of this priority set in relation to the flu remain to be determined, but if you can get a flu shot it would be a good idea to do so at the earliest opportunity.

Are there drugs available to treat avian flu?

As a general statement that I'm sure all doctors would agree with, there is no cure for viruses especially as they mutate. The October 15 issue of the New York Times reports that, "strains of avian influenza that are resistant to the antinflu drug Tamiflu have been isolated from a patient in Vietnam." The article mentions another flu drug Relenza that may treat strains unresponsive to Tamiflu. The Times article goes on to cite a study by a team of researchers at the University of Tokyo in press and due to appear next week in the journal Nature. The Times reports, "of the 10 virus samples the Tokyo team grew in the laboratory, 6 were highly resistant to Tamiflu. . . 3 were slightly resistant, and 1 was not resistant." It's difficult to discern the exact meaning of this language, and the

journal article should help clarify it, but basically it seems to reinforce what we already know: there's no medical cure for viral infection. Fortunately, the human immune system is much more clever and adaptable than any drug – but much the same can be said of viruses. Drugs have been developed that inhibit viral replication, but this is generally on a virus-by-virus basis and given the way influenza viruses change, generating a virus-specific treatment for avian flu represents an immense challenge. To the extent Tamiflu (oseltamivir) and Relenza (zanamivir) can be of benefit in certain cases, I would urge its use along with nutritional approaches and anything else that can help tip the scales in favor recovery in what will likely be, should an outbreak occur, a closely contested struggle between the immune system and bird influenza. If the choice is between a flu drug and a nanomask, I would opt for the latter. Public health authorities uniformly agree on the efficacy of appropriate facial shielding for reducing risk of infection. Nobody wants to have to wear a flu mask, and hopefully we won't have to, but this would definitely seem to be a case where the saying: "it's better to have it and not need it than to need it a not have it" applies.

What's the best-case scenario?

The best-case scenario is that avian flu doesn't break-out this season. I'm not convinced it will, but the indicators, in terms of spread among animals, show that the mathematical probability of a human outbreak is increasing. Another hopeful scenario is that if an outbreak occurs it will be with a virus weaker than H5NI. As is the case with storms, a category five causes much more destruction than a category four. A worst-case scenario now appears to be a 50% mortality rate, associated with human H5N1 infection. If a 30% less virulent form breaks-out instead, it would potentially equate to millions of lives spared. It's also possible that bird flu will stay away for years, but it is not responsible, based on the evidence, to assume this will be the case.