

Becoming Self-Sufficient for Six Months

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Introduction

Although this document is somewhat speculative in nature, it contains a variety of pragmatic cautionary statements, health advisories, and domestic survival tips that have been derived from authoritative scientific and empirical sources. Ordinarily, I provide an appropriate footnote citation whenever I state a fact that is not considered general knowledge within a particular field of study; however, time constraints and confidentiality issues have not permitted that particular academic exercise.

You will notice that this document tends to focus primarily on how to prepare for, and cope with, the economic impact of an influenza pandemic. Certainly, the impending pandemic provided the initial motivation for this writing, but the need for self-sufficiency is not restricted to pandemics. Indeed, most of the advice in this document could be adapted to a wide variety of situations in which the production or distribution of goods and services becomes disrupted for more than a day or two. Considering how vulnerable our country is to disasters, both natural and man-made, and considering that each disaster may have economic consequences that could affect your family's lifestyle, it simply makes good sense for every household to prepare to be self-sufficient for a certain duration of time. The greater the level of self-sufficiency you can achieve, the lower the impact of any emergency situation or economic disruption.

The Pandemic Scenario

There are 144 known strains of avian influenza. H5N1 is merely one of them. Many more strains of flu come from mammals, such as pigs and horses. Historically speaking, the global flu pandemic rate is at least three per century (there were 10 recorded pandemics in the last 300 years), so it is really not a matter of *if* the next pandemic will occur, it is simply a matter of *when*. Bear in mind that this particular strain of flu is not like the ordinary seasonal flu that affects us during the winter months, killing an average of 36,000 Americans each year. H5N1 is much deadlier, both to birds and to humans. As of November 1st, 2006, the mortality rate in humans was 60% (although it was 80% in Indonesia and 100% in Cambodia). The H5N1 virus has killed birds in over 50 countries, including the United States and Canada, and it has killed humans in at least 10 countries. It has also killed several other species of mammals.

Unfortunately, no effective vaccine for this strain of avian influenza can be developed until the virus has successfully mutated into a form that can be readily transmitted from human to human. Even then, after the vaccine is successfully produced (a process that takes about six months from start to finish), it will not be immediately available to the general public. Since global flu vaccine production capability is only about 500 million doses per year, the first several million doses will undoubtedly be distrib-

uted exclusively to global political leaders, various national security forces, and civilians who hold mission-critical jobs in such fields as medicine, law enforcement, and public utilities. Therefore, you might not be able to vaccinate your family until long after the pandemic has passed. To make matters worse, “Tamiflu”, the medication that is commonly administered to treat patients that are sick with common flu viruses, has shown limited effect against H5N1.

When H5N1 does eventually mutate into a form that is easily transmitted from person to person, it is expected to lose some of its lethality, but it could still be far deadlier than any flu the world has experienced since 1918. Some epidemiologists estimate that 50% of the global population will become sick with the flu and that 10% of the flu patients will die, which would be 300 million deaths worldwide. In the United States alone, that would be approximately 15 million deaths. Even if only 33% of Americans become ill and only 1% die, that would still be a loss of 1 million people. Although nobody can predict when the H5N1 virus will eventually give rise to a severe pandemic, the World Health Organization believes there is a very strong likelihood of this happening soon. This is because migrating birds continue to spread the virus to domestic birds, and because there are millions of people all around the world (including the U.S.) who live in close proximity to domestic fowl. These two factors create a recipe for disaster, since it gives the virus numerous opportunities in numerous locations to mutate and evolve into a form that can pass easily from human to human.

In addition to the present risk from infected birds, there is growing speculation that H5N1 has already spread to herds of swine in China, Nepal, Java, and India. On September 4th, the Chinese Ministry of Agriculture confirmed rumors that 2,500,000 pigs had become sick with an unexplained illness and at least 1,000,000 pigs had died. This confirmation is notable for a society that does not have a free press. There are also reports of cats and dogs that tested positive for H5N1 in Indonesia. If it is true that a flu virus is becoming an epidemic among swine in Asia, and now passing to other mammals, it could signal that the much-feared mutation has already begun and that human to human transmission is now inevitable. Transmission from mammal to mammal is much easier than transmission from birds to mammals.

The infection and death rates from the 1918 “Spanish Flu” suggest that over the course of a severe pandemic lasting several months, 33% of the global population would eventually become ill with the flu. If so, one-third of the world’s labor force could become too sick to work for at least two weeks per person. In addition to the hours lost to employee illness, the global labor force would certainly suffer from an indefinite period of voluntary absenteeism, as healthy people begin to practice “social distancing” in an attempt to avoid contact with those who may be infected. There would also be a substantial number of healthy workers who remain at home for days or weeks to care for sick family members; and, if schools and day-care centers are obliged to close their doors, a lot of working parents will have no choice but to remain at home with their children for weeks or months.

Beyond these temporary labor problems, substantial as they may be, it is likely that tens of millions of workers around the world will die from the next flu pandemic, including thousands of people who hold jobs that affect your family’s lifestyle. The net

result of all this lost labor will certainly be seen in long-term disruptions in the production and distribution of such basics as food, medicine, utilities, and public services. When any such disruptions do occur, you will certainly want your family to be prepared with the proper resources and knowledge for coping with the disruptions as comfortably as possible for as long as necessary. How long is necessary? If we are lucky, it could be only a few weeks, but it will probably be several months.

Although in a typical flu patient the very worst symptoms may come and go within a matter of a few days, it could take several weeks for the flu to make its way through an entire community. To complicate the matter, flu pandemics typically occur in two or three global waves, stretched out over a year or more. Consequently, people who did not become sick from the first wave would still be at risk for the flu during any subsequent waves. It is important to note that a wave of a pandemic does not have a clearly defined beginning or end. A wave is merely a period of time during which a whole lot of people become sick, more or less simultaneously. Between waves, however, many people will still be recovering, and more people will become sick. Unfortunately, it is the human interaction between the waves that is largely responsible for generating the next wave. Historically, as the wave seems to be passing, people tend to let down their guard and begin to return to their old routines, even though the flu is still present in their communities. This very behavior tends to generate the next wave. In addition, the virus may continue to mutate and evolve, possibly acquiring the ability to reinfect people who had previously survived it.

Since there is no time period during the pandemic in which it is safe to expose yourself to others, the only sure way to prevent infection will be to isolate your family in your home and wait it out; and, since each wave could easily last a full month in any given community, with a month-long recovery period after each wave, you might find it necessary to isolate your family for six months. While you may not find it absolutely necessary to completely withdraw from society for such a long time, you may have to face several months of economic disruptions during the pandemic and face several more months of disruption afterward. Even conservative pandemic scenarios acknowledge that most communities will experience limited availability of commodities and services for at least a couple of weeks. Mainstream scenarios, however, predict varying degrees of nation-wide economic disruption that will become increasingly worse as time goes by and will last for several months, with a lingering global recession lasting over a year.

Although it may seem improbable that any town in the United States would have to cope with a complete and total collapse in the distribution of food, medicine, utilities, and public services for more than a few weeks, it is likely that every community will have to adjust to some sporadic disruptions over a period of several months. Some disruptions may be intermittent, but some may linger for quite a while. However, since you can not know in advance which goods or services will be unavailable in your community, or for how long you might have to get by without them, it would be prudent to prepare for complete and total independence and self-sufficiency within your own home for at least the minimum duration of a global pandemic, which is estimated to be six months. That level of preparation would reduce the impact of any disruptions and would provide a great measure of comfort for your entire family.

Food for Six Months

Before you challenge the need to methodically amass a six month supply of food, ask yourself how long you could survive on the food you have right now. Then ask yourself which food items in your kitchen you can easily do without and which items you would really like to have on a regular basis. For example, if you could not purchase milk or bread for one full week, how would that affect your family? What if you could not purchase milk or bread for a month? What if the prospect of going to a grocery store was just too risky to consider? Food shortages should be anticipated, but even if there were plenty of groceries on the store shelves, during a pandemic you would want to avoid close contact with others, so going to the grocery store might pose an unacceptable health risk, both to you and to the folks back home.

Consider this: you could physically distance yourself from other people and wear an N100 respirator and nitrile gloves while shopping, yet the possibility exists that you will unknowingly bring the flu virus home from the market. It could be on your groceries. This is because most of the items in your grocery bags were handled by humans, and in a severe pandemic 33% of those humans will eventually be infected with the flu. Since an infected person can spread the flu a day or two before any symptoms appear, how would you know if a soon-to-be-sick retail clerk coughed or sneezed on one your grocery items just before you arrived? Simply put, you can not know, and since the influenza virus can survive on the exterior of a package for 48 hours, you would be compelled to sanitize or quarantine everything you bought before bringing it into your house. Clearly, at some point in time grocery shopping will be an activity to avoid until long after the pandemic has passed, so you need to get busy right now and begin stocking up. Here is a practical way of going about it:

- ◆ Establish a caloric goal for your household that is based upon the basal metabolic rate and the anticipated energy expenditure of each person. For example, an active family of four, with a combined weight of 570 pounds, will need 1,460,000 calories for six months. This caloric goal assumes that each person will need 14 calories per day per pound of body weight. However, to merely maintain any given weight, a sedentary person will only need about 11 calories per day per pound of body weight. So, a sedentary family of four that has a combined weight of 570 pounds will only require 1,144,000 calories for a six month period of time. Just for reference, both the United Nations and the World Health Organization have based their emergency relief rations on a 2,100 calorie diet.
- ◆ Develop and maintain a food storage shopping list or inventory sheet that will help you focus on buying products that contribute to your nutritional goals.
- ◆ Be sure that you can provide each person with an average of 25 to 30 grams of fiber and 50 to 70 grams of protein per day. Try not to worry too much about fats and carbohydrates. If you are careful about the calories you consume, they will all get burned up anyway. Instead, try to stock up on foods you will actually eat.
- ◆ Set a deadline for purchasing your emergency food and stick with it by buying at least an extra week's worth of groceries every time you shop.
- ◆ Stock up heavily on foods that are part of your normal diet, but which require no refrigeration and are easy to prepare without the aid of modern appliances.
- ◆ Check the expiration date of each item before you put it into your shopping cart, so

- you do not buy food that will be out of code in less than 6 or 8 months.
- ◆ For canned goods, select sizes that your family will eat in one meal. In the event of a power failure during mild weather, you will not be able to preserve leftovers.
 - ◆ For maximum shelf life, store your food in a cool, dark place and rotate your stock.
 - ◆ Protect your food from insects and rodents.
 - ◆ When you are no longer able to shop normally, consume the perishable items in your refrigerator first, followed by the items in your freezer. Only when these two sources are depleted should you consume your emergency food.

As you begin to purchase food for your six month emergency supply, you need to be aware of how much it costs to buy 8,000 calories of food (one day of meals for an active family of four). If you are not conscientiously acquiring high calorie foods, you may be surprised at just how expensive it can be to stock up. On the other hand, it can be really cheap. For example, at Sam's Club, you can purchase a 9 pound box of Quaker brand oatmeal for about \$6.88. Each box contains 100 servings and each serving provides 150 calories. That works out to 6.88¢ per 150 calorie serving. By contrast, a 15 ounce can of green beans contains only 70 calories. So, if you can still purchase them for 50¢ per can, it will cost you \$1.07 for 150 calories' worth of green beans. Therefore, to purchase 8,000 calories' worth of these products, the oatmeal will cost only \$3.73, but the green beans will cost over \$57. Of course, nobody wants to live entirely on oatmeal or green beans, but if the budget for your emergency food supply is limited, you need to be aware of the cost per day of your food choices.

You might be interested to know that there are quite a few food items that can supply a family with 8,000 calories for a very low cost. When purchased in large quantities, white rice, pasta, lentils, sugar, peanut butter, whole wheat flour, ramen, popcorn, and tortilla chips can each supply 8,000 calories for less than \$3. In the range of \$3 to \$4 for 8,000 calories, you can also buy corn meal, brownie mix, canola oil, pinto beans, brown sugar, peanuts, and oatmeal. When viewed from this perspective, a family of four could easily acquire a one month supply of fairly basic emergency food for under \$100, so six months is not really out of reach. Now, if your emergency supply budget can go as high as \$10 per day for a family of four, you can also include such desirable foods as Bisquick, saltine crackers, graham crackers, walnuts, red beans, chocolate, Doritos, muffin mixes, pancake mix, strawberry jam, split peas, vanilla wafers, Oreos, mayonnaise, honey, Nestle's Quik, and powdered milk. These daily costs are based upon actual purchases that were made at Sam's Club, Wal-Mart, Dominick's, Jewel, and Walgreen's in northern Illinois during the summer of 2006.

Although a carefully stocked refrigerator can easily store 100,000 calories' worth of food, you should probably not include any refrigerated items as part of your emergency food supply. Unless you can quickly replace the items you consume, your stocking levels will be unreliable, varying from day to day. Instead, you should merely consider your cold storage foods as bonus items. On the other hand, you may wish to start thinking about how to maintain a certain stocking level of high-value foods that can remain frozen for several months, like butter, meat, and nuts. Without a reliable generator and a good supply of fuel, your cold storage foods are at risk of spoiling during a prolonged power failure, but the longer you can get by on the food in your refrigerator and freezer, the longer your emergency food supply will last.

Household Supplies for Six Months

Imagine that 33% of the truck drivers and sales clerks in your community are too sick to work. There will be fewer deliveries of commodities and there will be very long lines at the check-out counters. Eventually, a mob scene will unfold at any store that has merchandise to sell. In a severe pandemic, that is what most people could face for an indefinite period of time. So, are there any non-grocery items that your family relies upon every day or every week or every month that they can not do without? Toilet paper and toothpaste should come to mind, as should vitamins, medications, and feminine hygiene products. In fact, the list of commodities that you will want your family to have is probably quite extensive; but, just like the problem with groceries, the problem with household supplies will be the unpredictable impact of the pandemic on product availability. Even if you are willing to go shopping, and even if you are willing to sanitize or quarantine the products that you buy, you really do not know how the pandemic will affect the production or distribution of the things you need.

Since you can not know in advance which commodities will be in short supply, or for how long they may be missing from the stores after the pandemic has passed, stock up on as many of them as possible as soon as possible. Fortunately, most of these items are not perishable, and many of them are compact, so you may wish to consider obtaining a one-year supply of every household commodity that your family will want to have, both during and after a pandemic. These suggestions should help to get you started:

- ◆ Take an inventory of the non-grocery commodity items in your kitchen, bathroom, laundry room, and garage. Determine how much of each item your family needs each month or each year. Based upon the estimated consumption rates, establish a stocking level of your essential and desirable household supplies. Be sure it is adequate to see your family through several months of economic disruption.
- ◆ Acquire both over-the-counter and prescription medications for as many common medical conditions as possible, even if you are perfectly healthy right now.
- ◆ Acquire personal protection equipment, such as respirators, nitrile gloves, sanitation supplies, and any items that will help you care for someone with the flu.
- ◆ Assume that you will not leave your home to go shopping for several months.
- ◆ Even if you choose to shop, assume that a pandemic will make everything scarce.
- ◆ Hospitals will not be prepared to care for the vast numbers of people who become sick, so you must accept the fact that it will be completely up to you to provide medical care in your home for every family member who becomes sick.
- ◆ Assume that you will not have access to a medical care facility for several months.
- ◆ Assume that everyone in your household will become very sick with the flu.
- ◆ If you have family members that are in the 18 to 40 year-old range, you really need to learn about the so-called “cytokine storm”.

[A cytokine storm is an especially lethal medical phenomenon. In brief, if the immune system of a healthy, young adult over-reacts to a strong flu virus and sends too many cytokine cells into the lungs, it will lead to rapid inflammation of the lungs and death by suffocation. The cytokine storm was the leading cause of death during the 1918 Spanish Flu pandemic and is presently the leading cause of death for victims of the H5N1 virus. On page 18 of this document you will find a link for further reading.]

Disruption of Utilities and Public Services

What would you do if you had plenty of food and household supplies but, after a couple of months of coping with a pandemic, your town lost its electric service? Could you power your sump pump and keep your basement dry? Could you power your furnace and heat your home? Could you cook? Now, imagine that shortly after the electricity goes out, your community is unable to pump clean water to your home. Since any given utility is often dependent upon the services of one or more other utilities, if your town lost electricity it would eventually lose its public water supply, too. This is because municipal water filtration systems and distribution pumps need electricity, and their back-up generators will eventually run out of fuel. So, if your town lost both electricity and water, how would they process raw sewage? Even if your home had an alternate source of water, such as a well or a stream, would you still be able to use your toilets if the local sanitary district could not accept sewage? And what about garbage pick-up or natural gas? At what point would they be disrupted?

Over a period of time, disruptions in supply chains and staffing could make it impossible for utility companies and public services to operate normally. Of course, your community may be fortunate enough to experience only sporadic disruptions; however, it may very well have to endure a complete shutdown of one or more utilities or services for an extended period of time. If you are not prepared for the possibility of disruptions, you could be faced with serious challenges to your present lifestyle. However, rather than speculate about which utilities and services might fail in your community, or in which order they might be disrupted, you should simply anticipate that at some point in time you will lose each and every one of them. Although it may seem unimaginable right now, this sort of inconvenience and hardship may be in your future. So, unless you are prepared to be completely self-sufficiency for water, heat, light, sanitation, and personal safety all at the same time for at least a month or two, your home could become quite unlivable.

Apart from the pressing need to keep your family warm, clean, and well-fed, you should also think about how to keep them safe. You need to understand that there will be millions of unprepared people in cities and towns all over the country who will suffer from absolute despair at the prospect of starving or freezing to death. Predictably, their despair will eventually give rise to localized store looting. Before long, the looters will undoubtedly seek out affluent neighborhoods, as some of them see no alternative but to break into homes in search of food and shelter. If this scenario seems a bit far-fetched, perhaps you should remind yourself of just how quickly the situation in New Orleans eroded into anarchy. Are you prepared for that kind of nightmare to become a reality in your town? Ready or not, here are some more unpleasant thoughts to help you focus on the need to become self-sufficient:

- ◆ Expect disruptions of electricity, natural gas, water, waste hauling, and sewage processing. Some disruptions may occur simultaneously and last for weeks.
- ◆ If your community can not haul away your garbage, you will have to store it indefinitely, so plan ahead to sort it out, and burn what you can. Think about reusing as many items as possible, such as metal cans and plastic bags.
- ◆ If your community cannot process sewage, and your toilets become useless, you

will have to dig a latrine and build a privacy screen. Alternately, you could invest in a couple of self-contained camping toilets, which could be used indoors.

- ◆ Influenza will affect people in every profession, so you should assume that the police department, the fire department, and the local ambulance service will be understaffed and overwhelmed. Do not count on them to respond to your needs.
- ◆ If your community lacks adequate staffing for law enforcement, you may wish to arm every member of your family and establish an armed neighborhood watch.
- ◆ Before social conditions really deteriorate in your town, cover all of your first floor windows with plywood and post quarantine signs on your doors and walls. Buy the plywood and fasteners now. If things begin to turn ugly (New Orleans style), consider placing an armed guard on the roof and sleeping in shifts.

Cooking Without Your Kitchen

If you have no utilities and no way to prepare hot meals without the aid of your kitchen appliances, you may have to survive on cold, ready-to-eat foods. Initially, that may not prove to be much of a problem, but unless you have invested heavily in ready-to-eat foods, you will eventually run out of things you can eat without cooking. For practical purposes, emergency food supplies are often built around large quantities of low-cost grain products that can tolerate long-term storage, such as beans, oatmeal, pasta, lentils, split peas, wheat, and rice—all of which must be cooked. You may even discover that half of your emergency food calories are locked up in dry grain products. This should not present much of a problem, however, because with a good camp stove and a decent supply of cooking fuel, you can avail yourself of all those grains and prepare hot food for every meal. Fortunately, cooking with camp stoves can be cheap and easy, so there is really no excuse for serving cold food, even in a prolonged emergency situation. Here are some tips for cooking without modern appliances:

- ◆ Acquire at least one camp stove that burns liquid Coleman fuel, and a second stove that burns propane. Propane camp stoves are very safe for indoor cooking, but they cost a lot more to operate than liquid fuel stoves. Save the propane stove for use when the weather is bad or when it is simply not safe to cook outdoors.
- ◆ Some camp stoves are dual-fuel capable, which means they can burn both Coleman liquid fuel and regular unleaded gasoline. These stoves are inexpensive, so you might think about buying two or three and saving one for use as a back-up.
- ◆ Measure the rate at which your stoves consume fuel, then acquire a 6 month supply for each one. Plan for an average of 20 minutes of cooking time for each meal. This rate of consumption will allow you to boil large kettles of pasta or beans.
- ◆ If you can not find Coleman liquid fuel, you can still store enough cooking fuel for a dual-fuel stove for months: top off your gas tank and get a siphon. A 10,000 BTU burner, operating for an hour each day, will use about one gallon per week.
- ◆ Although Coleman liquid fuel is highly refined and has chemical stabilizers for long-term storage, you still need to rotate your stock to keep it fresh.
- ◆ If you become sick, your family members will have to cook for you, so while conditions are still normal, be sure to have everyone become familiar with the stoves. Show them how to light, cook, and re-fuel each of your camp stoves.
- ◆ Have at least two manual can openers for all those canned goods.

Water

For the purpose of emergency planning, the water you use on a daily basis should be categorized by the quality and quantities you actually require. For example, water for oral hygiene or drinking requires the highest quality, but the lowest quantity; water for cleaning your body or your clothes requires the lowest quality, but the highest quantity; and water for cooking falls somewhere in-between. The differences among these three applications are important to understand, because if your community can not furnish clean water to your home, you will have to furnish it for yourself; however, not all of your water has to be good enough to drink. You certainly do not need to flush your toilet with drinking water, yet all of the water that is piped into your home is clean enough to drink. So, under normal circumstances, you actually do flush your toilet with drinking water.

Naturally, the prospect of being without tap water is pretty horrifying for Americans. We fully expect to have unlimited quantities of clean water every day. Unfortunately, even minimum hydration rations for one person for one month (15 gallons) take up a lot of storage space, so after you have obtained a six-month supply for everyone in your family, any additional storage of water for cooking and cleaning may not be practical. With a bit of planning and a good supply of containers, you can safely postpone storage of your drinking water rations until after a pandemic has been announced; however, you may eventually need an alternate source of water for cooking and cleaning. As you investigate alternate water sources, consider the steps that will be necessary to make this water safe enough for its intended use. For example, it does not really matter how dirty the water is if you only need it for flushing a toilet. By contrast, every drop of water that you collect for drinking, first aid, or oral hygiene must be processed in three distinct steps:

1. Prefilter the water with a paper coffee filter or several layers of cloth to remove as much silt as possible. This will extend the service life of your filter cartridges.
2. Add a chemical treatment to the water to kill as many organisms as possible. No filter can remove viruses, but they are easily killed with a small amount of *sodium hypochlorite*, also known as ordinary laundry bleach (unscented Clorox or Purex).
3. Filter the water down to 0.2 microns to remove organisms such as *cryptosporidium* and *giardia lamblia*, which can not be killed with small amounts of bleach.

Any water you collect from a roof, lake, sump pit, or shallow well must go through this three step process if it is going into your mouth or if it will be used to clean a cut, abrasion, or open sore. Here are some more ways to address your water needs:

- ◆ Plan for at least $\frac{1}{2}$ gallon of water per person per day for basic hydration. If you want to cook grains and legumes, increase that to one full gallon per person per day. With an additional two or three gallons per person per day, you can be clean.
- ◆ As soon as a pandemic is announced, fill as many storage containers as possible with municipal tap water. Municipal water has already been filtered and purified, but to be sure that your tap water will remain completely free of biological hazards for at least one year, add 4 drops ($\frac{1}{8}$ teaspoon) of unscented chlorine bleach per gallon. You will find an additional 50+ gallons of clean drinking water in your wa-

- ter heater, and a few more gallons if you drain down your pipes.
- ◆ Save your disposable soft drink and water bottles for storage of drinking water. Allow them to dry before storing them in clean plastic bags. When the pandemic is announced, sanitize these bottles and caps by immersing them in a solution of 1 tablespoon of chlorine bleach per gallon of water for two minutes. Then, fill them with water from your tap. Add 4 drops of unscented chlorine bleach per gallon as a preservative and this water will be safe to drink for at least one year.
 - ◆ Save plastic milk jugs, too, but do not plan to store drinking water in them. Due to the milk protein residues, you can never really get them clean enough for that. Instead, use them to store water for washing or flushing only. Because of the protein residues, you will need to add 8 drops ($\frac{1}{4}$ teaspoon) of unscented bleach per gallon of tap water. Milk jugs will biodegrade, so keep them out of the sunlight.
 - ◆ Water that you collect from your alternate sources for washing your body or clothes should be treated with 8 drops of bleach per gallon, however, this water should still be considered potentially hazardous, even with the addition of bleach. The large volume that you require for washing makes filtration impractical, so you must not allow this water to come into contact with your face or any broken skin (remember *cryptosporidium* and *giardia lamblia*). If you need to wash your face or broken skin, boil this water first, or use drinking water instead.
 - ◆ All cooking water that you collect from alternate sources should be filtered and boiled. If it reaches a full boil during cooking, you will not have to add bleach. If you do not have a proper water filter, you can remove most of the sediments from collected water by pouring it through coffee filters or layers of cloth.
 - ◆ Yes, you can boil water from just about any source and make it safe for drinking in a single step, but this process uses an awful lot of fuel and it has to be attended.
 - ◆ Consider the purchase of a high quality, portable, water filtration device, such as the Katadyn Gravidyn, for treating the water you collect. Be sure that the device you purchase is easy to use by everyone and will meet the needs of your entire household for at least one full year. (The Gravidyn produces one gallon of 0.2 micron filtered water per hour, has no moving parts, requires no power, does not have to be attended, is good for 10,000 gallons, and costs about \$160 at REI.)
 - ◆ If you do not have enough water for properly washing pots and pans, wipe them clean with a paper towel, then sanitize them by soaking them in bleach water for two minutes. 1 tablespoon of bleach per gallon is adequate for kitchen use.
 - ◆ If your domestic water supply is ever interrupted, you can conserve water by using your supply of disposable cups, plates, and utensils.
 - ◆ If you have a well and a generator, you should be able to draw water at a rate of 4 or 5 gallons per minute. If you allow for a few minutes of fuel consumption each time you warm up the engine, you should be able to draw 50 gallons of water for every $\frac{1}{4}$ gallon of gasoline your generator consumes. With a fuel supply of 15 gallons from your car's gas tank, you could operate a 5,000 watt generator long enough to pump 50 gallons of water per day, every day, for 2 full months.
 - ◆ An inexpensive alternative to a private well is a manual water pump for a shallow well. Although these "jerk-water" pumps can only draw from about 25 feet down, they are fairly cheap to purchase from such outfits as Northern Tools. Of course, you may need someone to help you install it and, since your new well is not very deep, you must filter and purify this water. Apart from that, you do need to have shallow ground-water in your region, so this solution is not for everyone.

Emergency Power

Unless you have solar panels, you probably rely entirely upon your local power company for your home's electric service. In turn, your local power company probably relies upon numerous other power companies on a regional power grid to assist them when they have generation or transmission problems. So, what will happen to your home if there is widespread sickness and absenteeism among the power plant operators and line technicians who contribute to the regional flow of electricity? What if the distribution system has broken down and repair parts are simply not available? Your town could experience a blackout. How will you cope without electricity? A total power failure during a pandemic is actually quite likely, and it is one of the pandemic consequences that all of the experts predict, but it may be a short-lived event that only lasts for a few days. On the other hand, a blackout may very well last for weeks. Regardless of the duration, if you can prepare for a blackout that lasts at least one full month, and if the month you prepare for is *January*, you should be able to ride it out just fine. Here are some measures you can take for getting along without electricity:

- ◆ Keep your basement dry with a battery-operated, back-up sump pump. An alternative would be a portable, 12 volt, transfer pump that can run off a car battery.
- ◆ Keep your water pipes from bursting by warming them with a catalytic propane heater. During a winter power outage, consider draining your pipes.
- ◆ Keep yourself warm during the day with winter clothing and sleeping bags. For maximum warmth at night, pitch a tent indoors and drape a couple of blankets over it. Then, simply add bedding and people.
- ◆ If you still have natural gas service, you can heat part of your home with your kitchen oven. Just be sure that the space you heat is not air-tight. As a measure of safety, place a carbon monoxide detector in any room that you intend to warm.
- ◆ Conserve your heat by closing off any room that you do not need to occupy.
- ◆ Kerosene lamps, which can each provide ten or twelve candlepower of illumination, are cheap to buy and cheap to operate. Have at least two for every room you plan to occupy. Store enough fuel and replacement wicks for several weeks of continual use. One gallon of kerosene should provide 12 candlepower for 100 hours.
- ◆ Candles can supplement your kerosene lamps, but unless they have stable bases and glass chimneys, they should only be considered as a back-up to a back-up.
- ◆ Propane powered heaters, lamps, and stoves can be used safely indoors, but they consume oxygen and release a small quantity of carbon monoxide, so they should not be used in air-tight spaces. Coleman liquid fuel lamps and stoves are far more economical to operate than their propane counterparts, but they emit relatively large quantities of carbon monoxide, so they must never be used indoors.
- ◆ A 5,000 watt generator will burn one gallon of gasoline per hour, so fuel storage for more than a few days of continuous use is not very practical. Apart from that, you should bear in mind that the noise from a large generator is rather conspicuous and will alert desperate people to the fact that you still have resources.
- ◆ Do not leave your generator unattended. If you must leave it for a while, chain it to something solid to prevent theft. Better still, bolt it to the floor of your garage or basement and furnish it with a metal pipe exhaust system.
- ◆ Purchase a couple of siphons, so you can use the gasoline in your automobiles to fuel your generator or your dual-fuel stoves.

Personal Protection Equipment

At some point in time you will become profoundly aware of just how vulnerable you are to this virus and you will want to take aggressive steps to protect yourself. Although you might be able to stay at home for many weeks, and thereby avoid all contact with the general public, you will eventually have to venture into the world for something. When you do, you will want protection. From a practical perspective, there is really nothing that can provide a 100% guarantee that you will not get the flu while you are out in public, but there are a few reasonable steps you can take that will help you prepare for the most common means of flu transmission.

Before you even step out to get the mail, put on a pair of disposable gloves. You have probably heard this before, but the most common means of transmitting the flu from human to human (or a cold) is from hand to face. That is, from your own hand to your own face. So, if you do come into contact with something that is contaminated, and if you then touch your nose, your mouth, or your eyes, you can introduce that very contaminant directly into your body. You pick it up from “who-knows-where” and it goes right from your hand to your face and it makes you sick. That is why hand washing is so important. In addition to hand washing, you need to wear disposable gloves before you come into contact with any object that has the remotest possibility of being contaminated. This includes such everyday things as doorknobs, gas pumps, mail, money, groceries, other people—in fact, any object that you have not personally quarantined or sanitized.

Apart from aggressive social distancing, frequent hand washing, and the religious use of disposable gloves, the most important thing you can do to protect yourself from the flu is to wear a respirator. This device can prevent the inadvertent inhalation of airborne particles that might contain the virus. Since viruses are transmitted easily from person to person through the aerosol cocktail of saliva and mucus that is ejected by coughs and sneezes, it makes good sense to filter out these contaminated airborne droplets before they get into your lungs. That is where the respirator comes in.

A respirator is merely a passive air filter that you wear over your nose and mouth. The most common one is the disposable N95, which is available for about \$1. This respirator is widely recommended by public agencies, but it is not capable of providing protection against the flu in all circumstances. The reasons are as follows: most N95 disposable respirators have a “one size fits all” design, so the perimeter seal is questionable; these respirators lack an exhaust valve, so any potential perimeter could be broken when you exhale; and, the designation of “95” means that only 95% of the particles that are 0.3 microns or larger will actually be filtered out. That allows 5% of the potentially infected particles to pass by the filter and enter your mouth or nose. Given these flaws, you should not rely upon the N95 for protection in close quarters. What you really need are N100 masks, but you need both the inexpensive disposable ones and the high-end reusable ones. Use the disposable N100s for limited service when the risk is low, and save the reusable ones for extended service in close quarters.

[If you must care for someone who has the flu, you will also need a face shield to protect your eyes from direct contact with anything that is ejected by a cough or sneeze.]

Additional Considerations for the Skeptic in You

Many state and local governments have expressed concerns over the investment that is required for adequate pandemic preparations. They do not believe they can afford it. Likewise, there are individuals who have expressed that they, personally, can not afford to become self-sufficient, either. Some folks simply view disaster preparation as a big outlay of cash without any tangible benefits. If you count yourself among them, you need to understand that becoming self-sufficient is just like buying insurance, except that this particular insurance policy refunds all of your premiums. Unlike ordinary insurance, which gives you absolutely nothing unless you have a claim (and then merely replaces what you already had), this sort of insurance provides you with a large stock of brand-new goods that you will actually possess and use. Besides, if you do not need it for H5N1, you will eventually need it for another flu strain, or for a natural disaster, or for some very bad event that is man-made. The world is not getting any safer, so you can not afford *not* to buy this insurance.

It is evident that governments and businesses around the world are finally beginning to take this situation seriously; however, they are not moving very quickly to prepare. There seems to be a lot of organizational work going on, but nothing much in the way of stockpiling emergency supplies. In fact, most of the pandemic preparation efforts of governments and businesses are not really meant to take care of the general population. Instead, they are aimed primarily at preserving the continuity of their own particular institutions. Likewise, your local government may already be fully aware of the potential impact that a pandemic would have on the community, but the welfare of your family will not be high on their list. Certainly, the local government officials will struggle just to care for their own families.

Unfortunately, there appears to be a consensus among economists, medical professionals, and government officials that neither the United States government nor private business can ever prepare adequately for this event. In fact, both the Department of Homeland Security and FEMA have released public statements to this effect, warning us that each family will have to take care of itself. So, unless you hold a job that contributes directly to the pandemic relief efforts (civil, medical, military, utility) it would be safe to assume that nobody has stockpiled any food or water or medicine for you. Even if you do hold one the more “mission critical” jobs, and even if your employer can furnish some supplies while you are on the job, nobody will be taking care of your home or your family. There will simply be too many sick, needy, unprepared people for any large-scale relief efforts to be successful. Now, if you are willing to accept this gloomy prospect as an impending reality, then you can appreciate how important it is for you to get your family ready to become very independent for a very long time.

- ◆ While there is still time to prepare, do research and learn for yourself about the various flu pandemic scenarios. Some authoritative web sites and journals predict that an absolute worst-case scenario will unfold, with a pandemic that lasts for more than a year, with millions of people dead in the United States alone, followed by an economic recession lasting two years.
- ◆ You could probably ignore most of the advice that is provided by the government at: www.pandemicflu.gov. They merely recommend a two week supply of food and

water per family. This modest recommendation implies that it will only take FEMA two weeks to provide relief to your community. Based upon FEMA's emergency response in New Orleans, two weeks seems optimistic, even for something as simple as subsistence rations in a stadium. Besides, your family is going to want more creature comforts than any government agency is willing to provide.

- ◆ Be sure to visit <http://www.fluwikie.com>. This site contains a good anthology of articles from a wide variety of sources. The numerous discussion threads at this site also offer practical information from a lot of well-prepared people.
- ◆ Some informed individuals believe that 150 million people could die from the next pandemic, yet others believe that only few hundred thousand will die, mostly in the developing countries of southeast Asia. Regardless, it is entirely possible that 100 million people in the United States will become very sick. So, you need to understand the means of flu transmission and the steps you can take to protect yourself and your family. Additionally, you need to know how to care for someone who has the flu. For a sobering and disturbing discussion on how to care for a flu patient, you should read: <http://www.fluwikie.com/annex/WoodsonMonograph.htm>. Woodson's timeline may be dated (he predicted early 2006), but his pandemic preparation advice makes for some very important reading.
- ◆ You should anticipate that absenteeism and social distancing, as well as actual illness, will combine to scare people away from contact with each other for an indefinite period of time. Since there will be no vaccine for several months, this may hold true for virtually every profession on Earth, from janitor to CEO. Certainly, it will apply to the two groups of people we rely upon the most for our food, medicine, and household supplies: the truck drivers and the sales clerks. Low staffing levels will cause problems everywhere.
- ◆ Most people can only get by for a week or two before they run out of something they really need, like milk or toilet paper, so you should anticipate that the vast majority of people in your community will be woefully unprepared to endure even one month of real hardship, let alone half a year. For this reason, you should formulate a standard response in anticipation of the moment when desperate people come to your door in search of food, water, and sundries.
- ◆ Keep your car's gas tank as full as possible, because your car is the fuel depot for your dual-fuel camp stoves and your generator. Remember: you will not be able to buy gas if there are no drivers for the fuel trucks or power for the pumps.
- ◆ Be sure to have plenty of cash on hand for making small purchases. ATMs, credit card readers, and banks need electricity, too.
- ◆ Anticipate that some civil disturbances will occur in every town. These disturbances could spill into your neighborhood, so you may wish to arm each member of your family. For an added measure of security, consider banding together with a few other families to create an armed enclave. Look around your neighborhood to see if there are like-minded individuals with whom you can form an alliance.
- ◆ Under normal circumstances, the mere presence of a firearm is enough to dissuade all but the most desperate of criminals. During a pandemic, however, despair may prevail even among the most rational of citizens. For this possibility, you should be prepared to fire a weapon as a means of stopping an invasion of your home.
- ◆ Finally, stay informed during the crisis by listening to your battery-powered radio. If social conditions begin to deteriorate around you, take steps to secure your home, but be ready to leave town with only a few hours' notice.

The Absolute Necessity of Thorough Preparation

According to the 2005 United States Census, approximately 12.5% of the American population is impoverished. That works out to roughly 37,500,000 people who live in households with annual incomes of less than \$20,000 for a family of four. At this income level, these people are unable to meet all of their own needs for food, shelter, clothing, and medicine; therefore, they must rely upon some government assistance program or private charity in order to survive. Needless to say, millions of these poor families live in run-down apartment buildings in bad neighborhoods. They live there because that is all they can afford. As you might expect, the ones who are gainfully employed tend to perform menial labor in low-paying industries, such as agriculture, food service, lodging, janitorial, entertainment, and transportation. Just think of all the people in this country who work in thankless, dead-end jobs as busboys, dish washers, fry cooks, custodians, chamber maids, ticket takers, ushers, car washers, landscapers, field hands, parking lot attendants, et cetera. These people do not have the disposable income necessary for even the most rudimentary pandemic preparations. They live from paycheck to paycheck, buying only what can for daily subsistence. They could not possibly “shelter in place” for more than a week or two, because they simply do not have the resources.

When the pandemic finally does arrive in the U.S., and people begin to practice social distancing, the lowest-paying industries with the highest public exposure will be shut down, and most of their employees will be laid off. Anyone who is not laid off, and who is still interacting with the general public, will almost certainly be exposed to the flu and they, in turn, will bring the virus home to their families. Ironically, the ones who were laid off will fare no better. They, too, will eventually be exposed to the flu and will bring it home to their families, because at some point in time they will have to leave their apartments in search of food, toiletries, and medicine. When they do, they will encounter infected people on the street, in public transportation, and in the stores. In very short order, these people are going to cause an enormous problem for the health care system, law enforcement, and every level of government.

Whether they are actually sick with the flu or not, it is likely that several million poor people will be flat broke and starving within a week, so they are sure to try every resource possible to get free food. They are going to show up at medical facilities, police stations, government offices, and schools in search of assistance. When they discover that the government is unable to help them, panic will set in and there will be civil disturbances and property crimes (remember New Orleans). Some of these people will merely go from door to door begging for handouts, but others will try to steal what they need from wherever they can. To make matters worse, within a couple of weeks, millions of these people will have full-blown cases of the flu, and there will be no safe means of handling the sick and the dying, or their corpses. Surely, any location with low-rent apartment buildings will be hell on Earth.

Although it might seem reasonable to believe that people at higher income levels will fare much better than the poor, that is not necessarily going to be the case. In fact, this same scenario will eventually unfold in every neighborhood in the country, no matter what the socioeconomic status: if you are laid off you will receive no income,

but if you go to work you are likely to become sick. Surely, as the pandemic progresses and the economy worsens, almost every industry will begin layoffs and people will eventually find themselves short of money for their necessities. However, whether or not you have the money or the credit to buy food, toiletries, and medicine is not the issue here. The issue is simply the risk associated with exposure to people who are sick. That is all. So, unless you already possess absolutely everything you need to be completely self-sufficient within your own home for a long period of time, it will not be possible to “shelter in place” effectively.

As I mentioned earlier, it is probably fair to assume that most of the middle and upper income families can get by for a couple of weeks with the supply of food, toiletries, and medicine they have stored in their cupboards, but two weeks is not going to be enough. Eventually, most of the families in this country will be exposed to the flu simply because they are not ready to endure an extended period of isolation. Their failure to prepare will eventually drive them from their homes. It is only a matter of time. Remember: if you can not shelter in place successfully for the duration of the pandemic, you will eventually be compelled to leave your home to get something from the outside world. If you have to get something from the outside world, you are sure to expose yourself to people who are sick. If you expose yourself to people who are sick, what makes your chances of survival any better than those of an unemployed busboy?

The Absolute Necessity of an Emergency Utility Plan

It is not possible to predict disruptions of public utilities, except to say that when the pandemic does occur, utility disruptions will follow; however, the actual extent of the disruptions could be highly variable. The pandemic might only cause minor inconveniences, such as the temporary rationing of gasoline, or it might cause a complete collapse of the global economy. No matter how uncertain the future, emergency utility planning has to make some fundamental assumptions about the sorts of things that will be disrupted and the length of time they will be unavailable to you. For the sake of your utility plan, the following *minimum* assumptions should be made:

- ◆ The pandemic will last for a cumulative period of one year.
- ◆ It will come in three distinct waves, each lasting two months.
- ◆ 33% of the population will get the flu and 2% of the population will die.
- ◆ Absenteeism in the work place will be 50%.
- ◆ Each wave will disrupt gasoline production and distribution for one month.
- ◆ Each wave will disrupt the power grid for one month.
- ◆ Each wave will disrupt the public water supply for one month.
- ◆ Each wave will disrupt garbage collection and recycling for one month.
- ◆ Each wave will disrupt sewage treatment for one month.
- ◆ The pandemic will disrupt natural gas service for six straight months.

[The problem with natural gas is that many homes and businesses still have pilot lights in their ovens, furnaces, and water heaters; therefore, utility workers must go to every address that is served by a particular local pipeline in order to verify that the gas valve has been turned off at the meter prior to restoring the flow of gas.]

The Next Six Months

After you have acquired everything you could possibly need to achieve complete and total independence and self-sufficiency within your own home for at least six months, you should start thinking about the next six months. If the economic disruptions really do last for more than a year, as the Congressional Budget Office predicts, many of the items that you want to have every day could become quite scarce and very expensive, even after the pandemic has passed. This is partly because our country's supply chains tend to operate on "just in time" inventory delivery systems. In addition, nearly every supply chain in the United States either distributes foreign products or relies upon some foreign-made equipment to remain operational. To make matters worse, a lot of our imported goods come from countries in Asia and South America where the standards of living are much lower than ours and where the population densities are much higher. Compared to the U.S. and other affluent countries, the high population densities of the poorer nations, in combination with their lower sanitation and health care standards, will surely result in much higher rates of illness, absenteeism, and mortality. Consequently, we should expect product shortages and inflated prices for many months after the pandemic has passed.

Apart from disruptions, shortages, and inflation, the discussions on the preceding pages made little mention of how to cope with any personal financial crisis that a pandemic might bring to your household. Informed speculation on such an issue really has to be case-specific, so I have avoided it. After all, people in some career fields, such as law enforcement and health care, are sure to remain in high demand indefinitely, while others may find themselves with fewer work hours or with no work at all. Certainly, when people start practicing social distancing there will be a sharp reduction in revenue for such industries as travel, entertainment, and food service.

Indeed, the Congressional Budget Office predicts that a severe pandemic will bring about layoffs and bankruptcies for just about any non-essential business that happens to bring people in close contact with one another. They also predict that thousands of households will emerge from the next pandemic with lower incomes or with no income. After all, in addition to the risk of layoffs or loss of employment, the possibility exists that the primary bread winner will not survive the flu. That is all the more reason to stock up on as much as you can as soon as you can. Do it while the goods you need are still available and affordable. Do it while you still have time to plan for your family's survival. Do it while you are still alive.

Finally, there is just one indisputable, scientific fact that you need to remember: it is not a matter of *if* the next pandemic will occur; it is simply a matter of *when*. So, whether or not you have already begun to prepare, you would do your family a great service if you were to visit the sites and links provided below and discover for yourself what the economists, epidemiologists, and government officials are saying about the impact that the next pandemic will have on our economy. I strongly recommend that you begin your research with the articles by Will Stewart and Grattan Woodson at: <http://www.fluwikie.com/pmwiki.php?n=Consequences.PandemicPreparednessGuides> If only half of their pandemic predictions come true, the entire world is in for some very hard times.

Useful Internet Sites and Links

http://web.mac.com/monotreme1/iWeb/Pandemic%20Influenza%20Information/PFI_Main.html
<http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:20978927~menuPK:34472~pagePK:34370~piPK:34424~theSitePK:4607,00.html>
<http://www.birdfluindex.com/>
<http://www.birdflumanual.com/>
<http://www.cbo.gov/ftpdocs/69xx/doc6946/12-08-BirdFlu.pdf>
<http://www.csgnetwork.com/h2oemergencypurifycalc.html>
<http://www.cytokinstorm.com/>
<http://www.epa.gov/safewater/faq/emerg.html>
<http://www.extension.umn.edu/info-u/nutrition/BJ642.html>
<http://www.flutrackers.com/forum/index.php>
<http://www.foodsafety.gov/~fsg/f01chart.html>
http://www.huttoncommentaries.com/Other/Health/H5N1/bird_flu_pandemc_prep.htm
<http://www.nal.usda.gov/fnic/foodcomp/search/>
<http://www.pandemicflu.gov/>
<http://www.pandemicfluandyou.org>
<http://www.pandemicreferenceguides.com/>
<http://www.princeton.edu/~oa/manual/water.shtml>
http://www.recombinomics.com/whats_new.html
<http://www.rei.com/online/store/LearnShareDetailArticlesList?categoryId=Camping&url=rei/learn/camp/clwatertreatf.jsp>
<http://www.slate.com/id/2148772/entry/2148778/>
<http://www.survivetheflu.com/>
http://www.who.int/csr/disease/avian_influenza/en/index.html