



Staying Healthy

MANAGEMENT OF
ENVIRONMENTAL
RISK FACTORS



INTRODUCTION

Alpha-1 usually does not, in and of itself, cause disease of the lungs or other organs. Rather, Alpha-1 makes individuals more susceptible to the risk factors that have the potential of causing organ damage in anyone. Thus, while certain environmental exposures might lead to relatively mild forms of lung or liver disease in individuals without Alpha-1, in those with Alpha-1 the same exposures can lead to more severe disease. It is important to appreciate that many individuals with Alpha-1 never develop any of these diseases. While some of this variability may be related to each individual's total genetic makeup, the major influences on the development of disease appear to be exposure to risk factors that are entirely or partially controllable.

This brochure will help identify these risk factors and suggest ways that you can modify or reduce your exposure to them. Because this brochure deals with factors in your direct control, you have the opportunity to take steps to prevent disease or slow its progression.

For individuals who are "carriers" of a single abnormal Alpha-1 gene, reduction of risk factors deserves special attention. Although the risk of developing diseases may be lower for carriers when compared to Alphas with two abnormal genes, there is a growing appreciation that carriers are also at increased risk for disease development. Therefore, controlling your exposure to these same risk factors is just as important for you.

RISK FACTORS RELATED TO ALPHA-1 LIVER DISEASE

Risk factors for [Alpha-1 liver disease](#) aren't as well-known as those for [lung disease](#).

Metabolic Syndrome

The single largest risk to an Alpha's liver is a condition called the metabolic syndrome that is often associated with being overweight. Fat accumulates in liver cells causing a "fatty liver," a medical condition associated with non-alcoholic steatohepatitis (abbreviated NASH). The risk factors for NASH include obesity, high cholesterol, high triglycerides, diabetes, and hypertension. Treatment for these conditions in Alphas is important.

Your liver is a large organ in the upper right part of the abdomen that is [vital to normal body function](#), because it:

- Removes toxins from your blood, including chemicals, bacteria and other germs.
- Makes alpha-1 antitrypsin and other proteins you need for blood clotting.
- Produces bile that helps your body absorb fats and vitamins.

Substances that are toxic to the liver in "non-Alphas" may be even more harmful to Alphas. They can be inhaled, swallowed, or absorbed through your skin. These toxins can cause liver damage, which may lead to cirrhosis, liver cancer, and liver failure. They include:

- Alcohol
- Solvents and cyclic organic compounds
- Toxic alkaloids
- Pollutants
- Dietary supplements
- Some prescription and over-the-counter drugs

Think before you drink alcohol

Alcohol is the #1 substance known to cause liver damage. The American Liver Foundation defines excessive alcohol consumption as any amount greater than two drinks per day in men and one drink per day in women.

Be careful with acetaminophen and non-steroidal anti-inflammatory drugs (NSAIDS)

Liver damage may be caused by many different drugs, including acetaminophen (Tylenol®). If you take it as prescribed, it's usually safe. If you take too much, all at once or over a period of time, it can damage your liver. It's even more toxic if you regularly have more than two drinks per day.

Indirect data also shows that NSAIDS like ibuprofen and naproxen can cause worse liver cell injury than acetaminophen.

NUTRITION

Not maintaining a healthy weight also puts you at increased risk of liver disease. Part of avoiding metabolic syndrome begins with choosing to eat healthy. Check out www.choosemyplate.gov and download the app. Some guidelines to remember:

- Not too much or too little
- Lots of different foods of plant or animal origin
- A balance between the energy you take in and the energy you put out

All food and beverage choices matter

Focus on making healthy food and beverage choices from all five food groups to get the nutrients you need.

- Fruits
- Vegetables
- Grains
- Protein foods
- Dairy

Eat the right number of calories for you based on your age, sex, height, weight, and physical activity level.

Building a healthier eating style can help you avoid becoming overweight or obese and reduce your risk of diseases such as heart disease, diabetes, and cancer.

Choose a healthy eating style

Use Nutrition Facts labels and ingredient lists to find amounts of saturated fat, sodium, and added sugars in the foods and beverages you choose.

Look for food and drink choices that are lower in saturated fat, sodium, and added sugar.

- Eating fewer calories from foods high in saturated fat and added sugars can help you manage your calories and prevent obesity.
- Most of us eat too many foods that are high in saturated fat and added sugar.
- Eating foods with less sodium can reduce your risk of high blood pressure.

Make small changes to create a healthier eating style

Think of each change as a personal “win” on your path to living healthier. Each MyWin is a change you make to build your healthy eating style. Find little victories that fit into your lifestyle and celebrate as a MyWin!

Start with a few of these small changes:

- Make half your plate fruits and vegetables.
 - Focus on whole fruits.
 - Vary your veggies.
- Make half your grains whole grains.
- Move to low-fat and fat-free dairy.
- Vary your protein routine.

Eat and drink the right amount for you.

RISK FACTORS RELATED TO ALPHA-1 LUNG DISEASE

Unless you live in a bubble, nowhere is 100% risk-free. Long-term, repeated exposures to risk factors have dangers. So, reducing them whenever you can may help you breathe better and live longer. Let's take a look at some common risk factors for lung and liver disease.

Risk factors related to Alpha-1 lung disease

Every time you breathe, you expose your lungs to elements in the air. Many of these can damage your lungs and affect your ability to breathe well. These include:

- Cigarette and other tobacco smoke (including secondhand smoke)
- Marijuana smoke
- Wood smoke
- Factory smoke
- Toxic fumes
- Solvents
- Dust
- Radon gas
- Bacteria and viruses

Understanding your risks can help you take steps to to avoid these harmful elements and protect your lungs and liver.

SMOKING IS THE GREATEST RISK

As an Alpha, many risk factors for lung disease are beyond your control. But you can control your exposure to cigarette smoke. And, you can quit smoking or never start smoking.

Cigarette smoke puts smokers on the "fast track" to lung disease. And for Alphas who smoke, that fast track becomes an express train. This is true if you smoke yourself, or if you're around secondhand smoke a lot.

If your child is an Alpha or a carrier, their risk of developing lung disease later in later life increases with exposure to secondhand smoke. The risks associated with cigarette smoke, especially in the presence of Alpha-1, are clear.

But, it's not always easy to avoid cigarette smoke. Some Alphas who smoke struggle to kick their addiction. Some Alphas live with smokers who don't want to quit.

Quitting may be hard, but it's possible with information, guidance, and support.

Facts about smoking

- Nearly 500,000 people in the United States die each year from smoking cigarettes.
- Smoking is a well-known cause of cancer, stroke, heart disease, COPD, and peripheral vascular disease. It harms many other systems in your body as well.
- Recent long-term studies show that about half of all regular cigarette smokers die from their addiction.
- Cigarette smokers inhale over 400 toxins and 43 known cancer-causing substances with each puff.

Cigarette smoke and alpha-1 antitrypsin

As smoke enters your respiratory system, it causes irritation and triggers inflammation. Your body sends white blood cells in response to the inflammation. They release a powerful enzyme while doing their work — neutrophil elastase.

Neutrophil elastase destroys unprotected lung tissue. Alpha-1 antitrypsin (AAT) protects your lungs by neutralizing this powerful enzyme. **But, one single cigarette can destroy most of the AAT in your lungs.**

Every cigarette you smoke causes more irritation, inflammation, and [lung disease](#). The damage happens slowly for people with normal AAT levels. They may not develop symptoms of lung disease until they're in their 50s or 60s.

But Alphas have reduced AAT levels. This already compromises their protection against neutrophil elastase. Exposure to cigarette smoke increases their risk of lung damage and results in severe symptoms of lung disease. Their symptoms may develop as early as age 30.

Augmentation therapy & smoking

[Augmentation therapy](#) involves getting weekly infusions of human plasma-derived alpha-1 antitrypsin (AAT) from healthy donors. These infusions boost your existing AAT levels.

If you're thinking about augmentation therapy, you must be smoke-free before you start. This makes sense because smoking will destroy most of the AAT you get from your infusions.

Other effects of smoking

Most people are aware of the links between smoking and heart and lung disease. Few people think about how smoking affects the rest of their body. But the toxins you breathe in with cigarette smoke make their way into your bloodstream. From there, they go to many other parts of your body, including the liver.

Processing drugs, alcohol, chemicals, and other toxins to remove them from the body is one of your liver's primary functions. Research suggests that smoking changes your liver's ability to handle and "detoxify" such substances.

Some research also suggests smoking can speed up the course of liver disease caused by drinking too much alcohol. Fortunately, smoking's harmful effects on the liver are temporary. You can reverse most problems by [quitting](#).

If you're a smoker, there's never been a better time to quit!

Quitting smoking may be one of the hardest lifestyle changes to make. But it's the most important step you can take to improve and preserve your quality of life.

Why quit smoking?

The benefits of quitting are numerous, significant, and undeniable.

When you quit, you'll have less:

- Coughing
- Airway inflammation
- Risk of heart disease, [lung disease](#), and cancer
- Lung damage and loss of lung function
- Risk of other health effects
- Destruction of alpha-1 antitrypsin
- Mess, smell, and burnt holes in clothing and furniture

When you quit, you'll have:

- More energy
- More money to spend on other things
- Better digestion and liver function
- A healthier home environment — for you, your family, and guests

How to make a plan to quit smoking:

There are many resources available to help you quit smoking.

- The [American Lung Association](#) and the [American Cancer Society](#) offer smoking cessation programs.
- Your doctor can refer you to smoking cessation programs in your area and talk to you about your treatment options.
- You can find many resources on the Internet.

STEP 1: FIND YOUR "WHY."

What's your motivation for quitting? For some, it's getting an Alpha-1 diagnosis.

STEP 2: GET SUPPORT.

Your doctor can help you create your plan. Then, you can share it with your family and friends, and enlist their help and support.

STEP 3: SET A QUIT DATE.

Studies show that you'll be more successful if you quit all at once instead of gradually.

STEP 4: CREATE A SMOKE-FREE HOME.

Remove all cigarettes, lighters, matches, and ashtrays in the home, in your car, and at your work. Don't let people smoke in your home or vehicle.

STEP 5: USE MEDICINE.

You can buy nicotine gum or patches at your local pharmacy. Or, ask your doctor about medicines to cut your cravings. A medicine called varenicline has been proven superior to nicotine replacement.

STEP 6: REPLACE SMOKING WITH OTHER ACTIVITIES.

Change old patterns by finding new and healthy activities, like walking, biking, or gardening.

STEP 7: EAT RIGHT AND EXERCISE.

Some people gain a little weight when they stop smoking. This is usually temporary. You avoid weight gain with regular exercise and proper nutrition.

STEP 8: REWARD YOURSELF.

Use the money you would have spent on cigarettes to treat yourself!

Follow these steps and you'll be on your way to a smoke-free life!

The facts about nicotine addiction and withdrawal

Smoking cigarettes creates an addiction to nicotine. You may have withdrawal symptoms when you quit. These symptoms can include:

- Irritability
- Restlessness
- Aggressiveness
- Depression
- Increased hunger
- Cravings
- Difficulty concentrating
- Poor physical and mental performance

The good news is these symptoms won't last forever. If they're really bad, you can use nicotine gum, patches, and nasal sprays to reduce them.

Alternative smoking cessation methods

Combining more than one form of treatment may boost your chances of success. Acupuncture, hypnosis, and counseling work for some people, along with support groups and smoking cessation programs.

Some patients have found success using e-cigarettes to decrease cravings. However, this method of nicotine replacement can become a stepping stone for young users to become cigarette smokers in the future.

Keep trying until you succeed!

Most smokers quit a few times before they finally "kick the habit" for good. To succeed, you'll need support from your doctor, friends, and family members.

Remember: If you have a lapse and start smoking again, don't give up. Set a new quit date and try again. There's no one perfect way to quit. Try different strategies until you find one that works for you.

Your lapse can give you useful information. See if you can figure out what made you start smoking again. Understanding these triggers can help you avoid them in the future. You may also want to get extra support to increase your chances of success.

For many, quitting won't be easy. If it were, there would be far fewer smokers in the world! But many Alpha-1 doctors report that more than 90% of their patients are able to quit. Learning the cold, hard facts about smoking and lung disease motivates them to keep trying until they succeed!

RISK FACTORS IN THE HOME

You might be surprised how many harmful substances exist in your home. Of course, [tobacco smoke](#) is the most harmful, but other risk factors at home include:

- Chemical fumes
- Spray products
- Dust and dirt
- Bacteria
- Mold and mildew
- Household cleaners
- Bug sprays
- Fireplace smoke

Common substances found in your home (cleaning products, soaps, deodorants, and cosmetics) can cause lung symptoms by their irritant effect and can sometimes make asthma worse.

Take a closer look at risk factors at home.

Fumes and Particles

Fumes and particles can come from almost anywhere:

- Kitchen
- Bathroom
- Workroom or garage
- Unvented kerosene heaters
- Gas heaters
- Fireplaces
- Wildfires
- Dusts
- Construction or building material (like particleboard and plywood, textiles, and carpets)

Tips to reduce your risk from fumes and particles

- **Wear a mask** if you're around smoke or dust.
- **Open windows and increase ventilation** when you are in areas where fumes may collect from within your home. You may want to install exhaust fans, too. Remember to inspect and clean them regularly.
- **Close windows to keep agents outside your home** when the irritating agents are coming from the outside (like wildfires).
- **Open the garage door** when you're working on your car in the garage. This keeps exhaust fumes out of your home.
- **Take care with solvents.** Tightly close containers. Dispose of saturated cloths or rags in sealed containers. Always use a mask and gloves when handling these substances.
- **Check carpets and carpet pads.** Make sure they have very little or no formaldehyde.

Household cleaning products and insecticides

These products can hurt your lungs and your liver. Use them with care.

- Ammonia-based products
- Petroleum-based products
- Oven cleaners
- Bleach and ammonia
- Spray furniture polish
- Bug sprays
- Spray paint
- Mildew remover sprays

Dust and dirt

These build up quickly and can cause breathing problems.

Helpful tips to reduce your risks from dust and dirt:

- Avoid dusty situations, like shaking rugs, vacuuming, sweeping, and dusting. In such situations, consider wearing a mask.
- Use a damp rag or mop to reduce airborne particles.
- Clean household appliances regularly, including:
 - Dryer filters
 - Refrigerator coils
 - Drip pans
 - Heat exchangers
 - Furnaces
 - Heating ducts & vents

- Replace the filters on your air conditioners and heaters.
- Use HEPA (High Efficiency Particulate Air) filters in your home. They're the best at filtering out small particles.
- Avoid electrostatic filters as these can produce ozone, a harmful gas.

Smoke from fireplaces and wood burning stoves

Smoke can be a risk factor for people with breathing problems.

Helpful tips to reduce your risks from smoke:

- Clean your chimney every year, or more if needed.
- Open the damper before lighting the fireplace.
- Burn firewood only. Paper, charcoal, and other items can cause toxic fumes.
- Be sure your wood stove is in proper working condition.
- Gas fireplaces generate little, if any, smoke.

Bacteria, mold, and mildew

These can build up in areas in the home that are moist, damp, and dark. This includes:

- Bathrooms
- Kitchens
- Basements
- Garages
- Humidifiers and dehumidifiers
- House plant soil

Helpful tips to reduce your risks from bacteria, mold, and mildew:

- Use fans to increase ventilation in bathrooms and kitchens. Make sure fans vent to the outdoors.
- Wash tile and grouted surfaces frequently, re-grout as needed.
- Wash and replace bath and kitchen sponges frequently, especially during cold and flu season. You can wash them in the washing machine or just soak them in bleach.
- Replace soiled hand towels with fresh ones routinely.
- Seal leaks and waterproof basements. Wipe up leaks and standing water as soon as possible.
- Clean humidifiers and dehumidifiers regularly.
- Empty water trays in air conditioners, dehumidifiers, and refrigerators frequently.
- Clean and dry water-damaged carpets, or remove and replace them altogether.

Where's the best place to live?

Many individuals with Alpha-1 are concerned about how a specific geographic location will affect their overall health, and whether moving might help their breathing. There is no "best" place to live.

What works for you can have to do with the altitude, local vegetation and pollens, humidity, temperature, and a group of unknowns regarding a given location. If moving is necessary or desirable, the best plan is to live temporarily in the location of your choice for an extended period and see how you do.

RISK FACTORS AT WORK

Many workplaces contain harmful substances. They put healthy people at risk and are very harmful to Alphas. Being aware of risk factors at work may help you make informed choices about your job and your career.

For example, if you're a young Alpha, avoiding jobs that expose you to toxic substances reduces your risk of lung or liver disease. And, if you get your diagnosis while working in a high-risk environment, you may need guidance and support to find and prepare for a new career.

Risks & results

Risk factors at work come in many forms such as smoke, gas, dust, liquids, vapors, or mists. The greater your exposure to toxic substances, the more damage you'll suffer. Many substances are twice as harmful to Alphas because they damage the lungs and liver.

Some hazards harm you right away. Others only cause damage after repeated, long-term exposure. For example, silica dust causes a serious lung disease called silicosis, but only after years of exposure. And, long-term exposure to carbon tetrachloride can cause hepatitis.

You can see and smell some breathing hazards, like dust or gasoline fumes. Substances like these may irritate your eyes, nose, and throat. But other hazards, like carbon monoxide, have no odor. Your sense of smell may also weaken with repeated exposure to hazards. You may not be aware even when you're in danger.

Risk factors at work — Exposure to toxic substances

Ammonia: A gas that is an irritant to eyes, nose, and throat. It causes upper airway constriction.

Asbestos: A dust that causes lung fibrosis or scarring of the tiny air sacs in the lungs and surrounding tissue. It also causes lung cancer.

Phosgene: A toxic gas that causes pulmonary edema, chemical pneumonitis, and corrosive burns to air passages. It also kills your liver cells.

Carbon Monoxide: A colorless, odorless gas that interferes with the ability of the blood to carry oxygen to the vital organs of the body.

Carbon Tetrachloride: A colorless liquid that causes cancer. It's toxic to the central nervous system, liver, and kidneys.

Toluene: A chemical with a distinctive smell, used in nail polish and paint thinners. It's often used in the plastics, insulation, and automotive industries. Small amounts of toluene diisocyanate (TDI) in the workplace causes asthma and wheezing. Toluene in larger amounts is also toxic to the liver.

NOTE: If you are repeatedly exposed to toxic substances on the job, your employer must provide you with the right kind of safety equipment. This includes respirator masks and protective clothing.

You can educate yourself about the substances you'll come in contact with at work. They're listed on Material Safety Data Sheets (MSDS). These documents give recommendations for avoiding, reducing, and eliminating exposure. They also tell you what to do if you're exposed.

NOTE: As an employee, it's your job to report an unsafe and unhealthful work environment to the Occupational Safety and Health Administration (OSHA).

Protect yourself with a mask

[Respirator masks](#) reduce the risk of exposure from inhaling smoke, dust, fumes, mist, or particles. Make sure:

- You have the right mask for your specific exposure — the substance and the particle size.
- Your mask fits properly with no gaps or leaks.
- Your mask isn't worn out or damaged.

Respirator masks may not work for you, as they can restrict breathing even more. In this case, you may need to be reassigned to a job that doesn't put you in contact with harmful substances. Work closely with the occupational health nurse, your supervisor, and your doctor to make sure you have a safe work environment.

RISK FACTORS OUTDOORS

Poor outdoor air quality and air pollution affect everyone, but they're very bad for people with lung and liver problems. Going outside exposes you to outdoor risk factors like:

- Air pollution
- Secondhand smoke
- Dust
- Fumes
- Chemicals
- Mold, fungi, and bacteria

Certain places have poorer air quality than others. The American Lung Association has information about [air quality in specific areas](#).

Even if you're careful, you may have breathing problems when exposed to pollutants and other irritants. But, talk to your doctor before you adjust your medicine or the level of your supplemental oxygen. Your doctor will assess your condition and recommend options for treatment and risk avoidance.

Air pollution risks

In communities where air pollution is common, news and weather reports often give air quality reports and warnings. If air quality is low, they may recommend that you stay inside or limit your activities when outdoors. You can reduce your risk by following their advice. And, if you have to stay indoors, keep your windows closed.

Outdoor risk factors during car travel

- Steer clear of crowded highways at the height of rush hour.
- If traffic's bad, find another route. Or, plan travel when traffic is lighter.
- If you can't avoid rush hour, keep your windows closed and turn on your air conditioner. Replace your cabin air filters as scheduled — or more often if needed.

THE USE OF MASKS

Many workers wear masks and respirators when they're [on the job](#). They may also be a good option for people who want to reduce their exposure to harmful substances in the air.

What's the difference between masks and respirators?

A mask is any device that reduces your exposure to harmful things in the air. A respirator protects you from inhaling dangerous substances.

Masks and respirators reduce your exposure to:

- Dust and dander
- Mold
- Fumes from paint, gasoline, and natural gas
- Chlorine, sulfur dioxide, and formaldehyde
- Printer's ink
- Ozone
- Smoke
- Cold air

How to choose the right kind of mask

There are many types of masks. Each type has its own specifications for reducing exposure to dust, mist, aerosols, particulates, or cold.

Your options include:

- Washable fabric masks
- Disposable tie-on surgical masks, like the kind hospital workers use
- Durable, industrial strength masks with filters, exhalation valves, and replaceable cartridges

You may have to do some research before you choose the mask that's right for you. Identifying the kind of protection you need is a great place to start.

Tie-on surgical masks

You're probably familiar with disposable tie-on surgical masks, especially if you watch any hospital dramas on TV. Wearing this type of mask prevents the person wearing it from spreading infection to others. Wearing a mask like this limits but doesn't absolutely prevent you from getting an infection from someone else.

N-95 masks

The mask recommended by the Centers for Disease Control (CDC) to minimize the risk of getting a respiratory infection is a mask with an "N-95 rating." These are also called N-95 respirators. The rating means that this mask can filter out 95% of airborne particles, if it fits properly and is used correctly.

An N-95 respirator is just one of the different types of

disposable particulate respirators. These types of masks are the simplest and least expensive of the respirator types available. They're also called "air-purifying respirators," because they filter particles out of the air.

N-95 respirators should be NIOSH approved (National Institute for Occupational Safety and Health) and should fit you properly.

NOTE: N-95s don't protect against gases, fumes, chemicals, or vapors.

Make sure your mask fits properly

Breathing through a mask may be difficult if you have existing breathing problems. But, with so many models to choose from, you'll probably find one that works for you.

Here are some tips to keep in mind to ensure a proper fit:

- Your mask should fit securely over your nose and mouth, creating a seal.
- If you have a beard, you may have to shave or trim facial hair to achieve a good seal.
- Using a nasal cannula for oxygen may prevent a tight seal.
- Adjust the nose clip if your mask blocks your vision.
- Adjust the straps for a snug, comfortable fit.
- Check for unwanted gaps.

NOTE: Is the mask reusable, washable or disposable? If so, follow the manufacturer's handling and cleaning procedures.

No mask offers 100% protection. [Good hand washing](#) is still a priority to prevent getting and spreading infections.

MINIMIZING THE RISK OF INFECTION

Of all the environmental hazards you face, bacteria, and viruses are the scariest. That's because they cause infections, which kill millions of people around the world every year. Check out these sobering statistics:

- Respiratory infections kill four million people worldwide per year.
- They're the #1 cause of death in children under the age of five.
- Viral infections that affect the liver cause between 6,000–10,000 deaths every year, just in the U.S.

Bacterial or viral-borne diseases

Bacterial or viral-borne diseases spread in droplets when you cough or sneeze, or when you touch something with dirty hands. You're at risk when you have close contact with infected people or touch surfaces like doorknobs, light switches, and telephones.

Wash your hands to prevent infections

Hand washing with soap and water is the best way to prevent the spread of infection. So, make sure to wash your hands before you eat or prepare food and after you:

- Cough or sneeze
- Handle dirty tissues
- Use the restroom
- Change a diaper
- Touch surfaces that others have touched

How to wash your hands

To make sure you're getting the most from your hand washing, follow these steps:

1. Wet your hands with warm running water.
2. Add soap and then rub your hands together, away from the running water, making lather. Continue for at least 20 seconds.

Rub the front and back of your hands, between your fingers, and under your nails.

Scrub your knuckles, and don't forget your wrists.
3. Rinse your hands well under warm running water. Let the water run back into the sink.
4. Dry your hands completely using a clean towel, preferably a paper towel. Use the paper towel to turn off the faucets.

What to do if you can't wash with soap and water

If you don't have access to soap and water, use hand sanitizer or wipes. Read the label to make sure they have at least 60% alcohol.

NOTE: Wipes and hand sanitizer don't work if you have spit or feces on your hands. You'll need soap and water in those cases.

When you're traveling, bring along a supply of antibacterial wipes or sprays. Use them to clean things like seatbelts and tray tables on airplanes, and phones and light switches in your hotel.

REMEMBER: Washing your hands is the best protection against infection. But, if you don't have clean water, use hand sanitizer or wipes.

Other ways to lower your risk

If you have a respiratory illness:

- Keep your distance from people who have a known respiratory illness, or are sneezing or coughing.
- Limit contact with young children who are attending day care.

If you have a contagious illness:

- Avoid contact with other people with contagious illnesses.
- Avoid crowded places where people are in close contact.

If you're visiting a doctor's office or hospital:

- Try to get the first appointment of the day.
- Come when the waiting room is less likely to be crowded.

In high-risk situations:

- Wear an [N-95 rated mask](#).
- Carry your mask in a small plastic bag when you're not wearing it.

Vaccines protect you from infections

Follow [CDC vaccine guidelines](#) for:

- COVID-19
- Pneumococcal Disease
- Hepatitis A and B
- Tdap (for whooping cough)

And, make sure to get a [flu shot](#) every fall.

Bacteria and viruses are everywhere, but you can take steps to reduce your risk of [infection](#).

VACCINES

Alphas are at greater risk for infections of the nose, windpipe, and lungs (respiratory infections) and infection-related liver damage. Vaccines can greatly reduce your risk.

Flu vaccine

The influenza virus causes influenza or "the flu." It spreads from person to person when they breathe infected droplets in the air.

Similar to other respiratory viruses like COVID-19 (SARS-CoV-2), the flu can cause severe illness. About 36,000 people in the U.S. die from the flu every year. More than 100,00 end up in the hospital as a result of the flu.

Flu symptoms include:

- Fever
- Headache
- Feeling tired
- Cough
- Sore throat
- Runny or stuffy nose
- Sore muscles

NOTE: Children may have nausea, vomiting, and diarrhea. Adults rarely have those symptoms.

Having the flu can lead to pneumonia and dehydration. It can also worsen chronic medical conditions like heart failure, asthma, or diabetes. This is especially true if you're over 65 or have chronic health conditions.

Who needs a flu vaccine?

Anyone with a higher risk of serious complications, including people who:

- Are 50 years old or older
- Have chronic heart or lung disease
- Have weak immune systems
- Live in nursing homes
- Work in the healthcare field
- Live with high-risk individuals

The problem with FluMist®

FluMist is a newer form of flu vaccine. You don't get it as a shot. Instead, you take it as a spray, right into each of your nostrils. But that's not the most important difference between FluMist and the standard flu shot.

Standard flu shots are made from **dead virus**. FluMist is made from a weaker form of **live virus**. Because of this, Alphas with a lung or liver transplant, or those over 50, should not receive FluMist and their families are cautioned against getting the FluMist vaccine. They should also avoid being around other people who have had FluMist for about two weeks.

Alphas under 50 years old with lung disease or with asthma should speak with their healthcare provider about whether to consider this form of the vaccine.

NOTE: FluMist is not recommended for people who are allergic to eggs or egg products.

Coronavirus (COVID-19) Vaccines

COVID-19 is caused by a coronavirus called SARS-CoV-2. Older adults and people who have severe underlying medical conditions like heart or lung disease or diabetes seem to be at higher risk for developing more serious complications from COVID-19 illness.

COVID-19 affects different people in different ways. Infected people have had a wide range of symptoms reported – from mild symptoms to severe illness.

COVID-19 symptoms appear 2-14 days after exposure. They include:

- Fever or chills
- Fatigue
- Sore throat
- Cough
- Muscle or body aches
- Congestion or runny nose
- Shortness of breath or difficulty breathing
- Headache
- Nausea or vomiting
- New loss of taste or smell
- Diarrhea

COVID-19 vaccine options

Currently there are three COVID-19 vaccines available in the US. The Pfizer-BioNTech COVID-19 vaccine, the Moderna COVID-19 vaccine, and the Janssen (Johnson & Johnson) COVID-19 vaccine. The Pfizer and Moderna vaccines require a series of two shots while the Janssen vaccine only requires one. Timing for the two-shot series varies by manufacturer.

Who needs a COVID-19 vaccine?

Adults and children over 12 should receive the Pfizer vaccine (the only vaccine currently approved for children 12-17). Adults over 18 can receive any of the vaccines for COVID-19.

Who needs a booster?

The CDC now recommends that people aged 18 and over should receive a booster shot either 6 months after their initial Pfizer or Moderna series or 2 months after their initial Janssen (Johnson & Johnson) vaccine. The CDC states that you can receive any of the three COVID-19 boosters authorized in the United States.

Pneumonia Vaccine (Pneumovax-23 & Prevnar-13)

Pneumococcal pneumonia is caused by a bacteria called *Streptococcus pneumoniae*. The infection begins with a high fever, cough, and stabbing chest pains. It's one of the most common causes of death in the United States, killing 7,000-13,000 people each year.

Who needs a pneumonia vaccine?

There are 2 kinds of pneumococcal vaccinations. The CDC recommends PCV13 for all children younger than 2 years old and people 2 years or older with certain medical conditions, including lung and liver transplant recipients. Adults 65 years or older also can discuss and decide, with their clinician, whether to get PCV13.

The Advisory Committee on Immunization Practices (ACIP) recommends Pneumovax-23 vaccines for people aged 2-64 with:

- Chronic cardiovascular disease, including congestive heart failure
- Chronic obstructive [lung disease](#), like emphysema
- Diabetes
- Smokers

People over the age of 65 (and their caregivers) should get a dose of Pneumovax-23. Dosing should start five years from the last dose before you turn 65. For example, if you turn 65 and had your dose of Pneumovax when you were 63, you'll get your next dose at 68.

Individuals over the age of 65 also should discuss getting the Prevnar-13, the newest pneumococcal vaccination, with their healthcare provider. This vaccine is only given once and Prevnar-13 and Pneumovax-23 should be given separately and on a staggered schedule, per the guidelines.

Hepatitis Vaccines

Hepatitis is a word used to describe inflammation of the liver. This may be due to Alpha-1 or viruses. Hepatitis can lead to tenderness and scarring. The most common types of viral hepatitis are hepatitis A, hepatitis B, and hepatitis C.

You can get hepatitis A from contaminated food or water, or if you come in contact with feces. Hepatitis B and C are transmitted through infected blood and bodily fluids.

Hepatitis B and C may become chronic conditions and lead to serious, permanent liver damage and death. Because Alpha-1 may increase the liver disease caused by these infections, all Alphas should get the hepatitis B vaccine series. And, every Alpha should be tested for hepatitis C because there is a cure for it.

ORAL HYGIENE

We all know prevention is one of the keys to staying healthy. Oral hygiene is another important step in maintaining overall health. And, it's not just about having whiter teeth and a brighter smile!

People used to think that tooth loss was the worst result of gum disease. But studies have shown **oral health affects your entire body**. Bacteria in your mouth, especially from decaying teeth or infected gums, can easily enter your bloodstream. From there, they migrate through your body damaging your heart, lungs, and other organs.

Recent research also suggests the bacteria found in your mouth and throat can be drawn into the lower respiratory tract. Then, they cause infections in your lungs and bronchial tubes.

Some people are more likely to get respiratory infections:

- The very young or very old
- Alphas with lung disease
- People with weak immune systems

For these people, good oral hygiene is a key part of a disease management and prevention program.

Some medicines cause dry mouth

Some of the inhaled medications for COPD cause dry mouth. The most common of these are [short-acting muscarinic antagonists](#) (SAMA) and [long-acting muscarinic antagonists](#) (LAMA) inhalers. To prevent dry mouth, practice your inhaler technique, and rinse your mouth with water or mouthwash after using your inhaler.

What is gum disease?

Gum disease starts when a build-up of bacteria, called plaque, collects at the gum line. Over time, this hardens into calcium deposits called calculus or tartar. With poor oral care, these bacteria can cause swelling of the gums, or gingivitis. They may end up penetrating the gum line and spreading into the underlying bone.

The human mouth always contains some bacteria. But, any kind of dental infection increases the number of bacteria present. It can also lead to hard-to-treat infections in the lungs or airways.

According to some estimates, as many as three out of four adults over the age of 30 may suffer from some degree of gum disease. Fortunately, with proper oral care, gum disease can be controlled or even reversed.

Oral hygiene tips

Visiting your dental hygienist on a regular basis is one of the most important steps you can take to maintain or improve your oral health. Your dental hygienist will review your medical history, clean and polish your teeth, and refer any areas of concern to your dentist or physician.

Developing a good daily cleaning regime, along with routine office visits with a dental hygienist, will control or reverse gum disease. Less than five minutes, twice a day, is all it takes to maintain or improve oral hygiene:

Brushing

1. Place your brush at a 45-degree angle at the place where your teeth and gums meet.
2. Apply gentle pressure as you move the brush away from the gums.
3. Don't forget to brush your tongue (with or without toothpaste), where bacteria build up.
4. Brush for about three minutes.

Flossing

1. Wrap 18 inches of floss around your middle fingers until you have a two-inch length between them.
2. With the thumb and forefinger of each hand, guide the floss gently and carefully between each tooth in a "C" shape.
3. Gently guide it up and under the gum line.

Mouthwash

There is no evidence that using antibacterial mouthwash prevents upper respiratory infections. But you will have better breath.

Dentures

Clean your mouth and get regular check-ups to prevent oral health problems.

Nothing puts a smile on your face like better health, so take care of your teeth and gums!

SUMMARY

While having a genetic condition brings with it certain uncontrollable risks and predispositions, for Alpha-1, many of the important risk factors are, in fact, controllable and manageable. The conscious choices you make in your environment can safeguard your health. This pamphlet has described the known risk factors for disease in Alpha-1 and suggested ways to reduce these risks. The changes needed to protect your health often involve cooperative efforts between you, your family, your employer, and your health care providers.

This cooperation is important to maximize your continued health and quality of life.



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This single topic brochure is one of a series extracted from AlphaNet's Big Fat Reference Guide to Alpha-1 (the BFRG), which is available on the AlphaNet website (www.alphanet.org).

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