



Interferon  
Instructions  
and  
Management  
Manual

Interferon Patient Instruction  
and  
Management Manual

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# What is Interferon alfa-2b, recombinant therapy and how does it work?

## Your Immune System

Your body's first response to an invasion by viruses, bacteria, and other disease-causing organisms is called the immune response. The immune response is like a "general alarm" that signals your body that something has entered or does not belong there.

Your immune system involves your body's ability to distinguish cells that are native to the body from those that are foreign and are invading your body.

## Your Body's Lines of Defense

Your body recognizes foreign, diseased, or cancerous cells because of special marks on their surfaces. These marks allow your body's immune system to distinguish them from healthy cells in your body.

When this occurs, the immune response begins, sending fighter cells to destroy invading cells. Cells of your body that have been stimulated will begin to produce interferons and other natural substances. Although the precise mechanism of action is not fully understood, these substances not only fight foreign invaders, they can also prevent the growth and spread of their diseased cells.

Interferon therapy is the bioengineered version of interferon alpha-2b, a natural protein your body already produces. Because Interferon therapy adds a type of human interferon to the interferons your body is already producing, it may stimulate your body's ability to fight disease.

**Information from the  
Center for Disease Control and Prevention  
(CDC)**

# Hepatitis C

## **What is hepatitis C?**

Hepatitis C is a liver disease caused by the hepatitis C virus (HCV), which is found in the blood of persons who have this disease. The infection is spread by contact with the blood of an infected person.

## **How serious is hepatitis C?**

Hepatitis C is serious for some persons, but not for others. Most persons who get hepatitis C carry the virus for the rest of their lives. Most of these persons have some liver damage but many do not feel sick from the disease. Some persons with liver damage due to hepatitis C may develop cirrhosis (scarring) of the liver and liver failure, which may take many years to develop. Others have no long-term effects.

## **What can I do now that my hepatitis C test is positive?**

Contact your doctor. Additional tests may be needed to check your diagnosis and to see if you have liver damage.

## **What if I don't feel sick?**

Many persons with long-term hepatitis C have no symptoms and feel well, but should still see their doctor. For some persons, the most common symptom is extreme tiredness.

## **How can I take care of my liver?**

- See your doctor regularly.
- Do not drink alcohol.
- Tell your doctor about all medicines that you are taking, even over the counter and herbal medicines.
- If you have liver damage from hepatitis C, you should get vaccinated against hepatitis A.

## **Is there a treatment for hepatitis C?**

Drugs are licensed for the treatment of persons with long-term hepatitis C. You should check with your doctor to see if treatment may help you.

## **How could I have gotten hepatitis C?**

HCV is spread primarily by exposure to human blood. You may have gotten hepatitis C if:

- You **ever** injected street drugs, even if you experimented a few times many years ago.
- You were treated for clotting problems with a blood product made before **1987**.
- You received a blood transfusion or solid organ transplant (e.g., kidney, liver, heart) from an infected donor.
- You were ever on long-term kidney dialysis.
- You were ever a healthcare worker and had frequent contact with blood in the workplace, especially accidental needle sticks.
- Your mother had hepatitis C at the time she gave birth to you.
- You ever had sex with a person infected with HCV.
- You lived with someone who was infected with HCV and shared items such as razors or toothbrushes that might have had blood on them.

## **How can I prevent spreading HCV to others?**

- Do not donate your blood, body organs, other tissue, or sperm.
- Do not share toothbrushes, razors, or other personal care articles that might have your blood on them.
- Cover your cuts and open sores.
- If you have one long-term, steady sex partner, there is a very low chance of giving HCV to that partner and you do not need to change your sexual practices. If you want to lower the small chance of spreading HCV to your sex partner, you may decide to use latex condoms. (The efficacy of latex condoms in preventing infection with HCV is unknown, but their proper use may reduce transmission.) Ask your doctor about having your sex partner tested.

## **What if I am pregnant?**

Five out of every 100 infants born to HCV-infected women become infected. This occurs at the time of birth, and there is no treatment that can prevent this from happening. However, infants infected with HCV at the time of birth seem to do very well in the first few years of life. More studies are needed to find out if these infants will have problems from the infection, as they grow older.

*Persons should not be excluded from work, school, play, child-care, or other settings on the basis of their HCV infection status.*

**Hepatitis C is NOT spread by:**

- Breast-feeding
- Sneezing
- Hugging
- Coughing
- Sharing eating utensils or drinking glasses
- Food or water
- Casual contact

**If you use or inject street drugs:**

- Stop and get into a drug-treatment program.
- If you cannot stop, do not reuse or share syringes, water, or drug works.
- Get vaccinated against hepatitis B and hepatitis A.

**If you are having sex, but not with one steady partner:**

- You and your partner can get diseases spread by having sex (e.g., AIDS, hepatitis B, gonorrhea or chlamydia). Use latex condoms correctly and every time. (The efficacy of latex condoms in preventing infection with HCV is unknown, but their proper use may reduce transmission). The surest way to prevent the spread of any disease by sex is not to have sex at all.
- Get vaccinated against hepatitis B.

**There is no vaccine available to prevent hepatitis C.**

## **What are the side effects that may be experienced with Interferon?**

Patients who receive Interferon will have some mild to moderate side effects. Also, some patients have more severe side effects, which include a decrease in white blood cells and platelets, fatigue, muscle pain, headache, fever, chills. Other frequently occurring side effects include nausea, vomiting, depression, mild hair loss and diarrhea.

It is critical that you continue the course of therapy that your doctor has prescribed, so that you can get the greatest benefit from your therapy.

The following pages may aid you in managing the side effects you are experiencing. As in all instances, please notify your physician if symptoms persist.

## **Understanding and Relieving the Side Effects of Peginterferon/Ribavirin Therapy**

While on therapy with peginterferon, you may experience one or more side effects. Side effects are “extra” physical reactions that many treatments may cause. Usually, it’s an unwanted or uncomfortable effect on your body or emotions. The same treatment can cause different reactions in different people. Side effects from peginterferon are usually manageable and can be kept under control. Use this sheet to help you understand some of the possible side effects and how to help relieve them, if they do occur.

### **Flu like Symptoms**

Therapy with peginterferon sometimes causes mild-to-moderate “flu like” symptoms - - fever, chills, headache, and muscle aches. These can be common at the start of therapy, but can be treated and should begin to lessen after a few weeks.

When you don’t feel well, remember:

- It’s normal to experience side effects 4 – 6 hours after an injection of peginterferon.
- By taking your injection shortly before bedtime, you may be able to sleep through the flu like symptoms.
- Acetaminophen or a nonsteroidal anti-inflammatory drug may help relieve these symptoms. Speak with your physician about what does is safe for you to use.

### **Fatigue**

Peginterferon therapy, as well as chronic hepatitis, may cause some fatigue - - feelings of being tired, weak, or having little energy. Stress, anxiety, and depression all can add to fatigue. Fatigue can take many forms, including poor memory, irritability, difficulty concentrating, and generally feeling lazy and inactive.

To help get some of your energy back, you should:

- Try to stay hydrated by drinking water, clear juices (e.g., apple, grape, or cranberry), or other beverages (without caffeine or alcohol) every day. Take your weight in pounds and divide it in half. This is the number of

fluid ounces you should drink each day. For example, a 100 lb. person should drink 50 fl. oz. per day.

- Get plenty of sleep every night.
- Take a short nap or just rest whenever possible.
- Take up light-to-moderate exercise, if possible.
- Adjust your work schedule, if possible.
- Take your injection of peginterferon shortly before bedtime.

## **Depression**

Some people experience depression while on peginterferon therapy. Some important signs of clinical depression are fatigue that doesn't improve with rest, continual and long-lasting feelings of extreme sadness, crying, big mood swings, or loss of interest in things you've always enjoyed. Trouble concentrating can be another sign of clinical depression. On the other hand, it's very common to experience brief mood swings, confusion, anxiety, and sadness during therapy. Very infrequent reports of suicidal behavior (thoughts about suicide, attempts, and completed suicides) have been associated with treatment. If you are experiencing symptoms of depression, particularly suicidal thoughts, *contact your physician*, who can provide additional treatment and support measures to help you.

### **Additional tips:**

- Talk openly about the way you feel to your doctor, nurse, counselor, family, friends, or your pastor, minister, or rabbi.
- Get involved. Join a local hepatitis support group, if one exists.
- Establish regular mealtimes, sleep and hygiene regimens, and relaxation periods, which are helpful in reducing stress.
- Exercise regularly.
- Recognize and “reroute” negative thinking and keep a journal.
- Eat foods that contain tryptophan, which helps raise the level of the brain chemical serotonin. These include turkey, eggs, milk, salmon, raw fruits and vegetables, foods made with soybeans or soy products, brown rice, and legumes.
- Limit intake of phenylalanine, which is found in aspartame (artificial sweetener), MSG, and nitrites.
- Try avoiding wheat, since wheat gluten has been linked with depression.

## Loss of Appetite

With peginterferon therapy, you might find that you're not hungry. You may have trouble eating because of feeling sick to your stomach. Or, you might lose your desire for food because you're upset, worried, and afraid. It's also common to feel full after only a few bites of food. This starts a negative cycle: you take in fewer calories, lose weight, and your energy level drops thus weakening your immunity and making you more likely to get infections. To help your body build up immunity, mend damaged tissues, and stay in general good health, some doctors believe you need 20% more nutrients than you did before you got the virus.

Here are some things you can do to achieve this goal:

- Remember that eating well can help reduce possible side effects, and good nutrition can help you keep up your strength.
- Make the most of “good” days and “good” times during the day. Many people find that their appetite is better at breakfast so they can eat a larger meal in the morning.
- Eat whenever you are hungry - - don't wait for a mealtime. Several small meals spaced 2 – 3 hours apart may be better tolerated than 3 large meals. Include a snack before bedtime.
- Serve small portions of food on small plates.
- Keep a variety of nutritious snacks around, such as yogurt, puddings, ice cream, frozen yogurt, cheese, graham crackers, peanut butter, breakfast bars, a favorite breakfast cereal, fruit, and fruit juices. Buying foods in individual serving sizes may be helpful.
- Use timesaving meals that require little or no preparation such as deli meats, ready-to-eat foods, prepared dinners, soups, mixes, and casseroles.
- Make mealtime pleasant and relaxing. Eat with other people. If possible, listen to soft music or watch a favorite TV show while you eat.
- Look into participating in a program like “Meals on Wheels”. A social worker should be able to help you arrange for such services.
- Light exercise may help stimulate your appetite. (Check with your doctor before beginning any exercise program.)
- If desired, ask your doctor about medications to stimulate your appetite.
- Try to stay hydrated by drinking a combination of water, clear juices (e.g., apple, grape, or cranberry), or other beverages (without caffeine or alcohol) every day.

- Drink liquids between meals - - fluids at meals may make you feel full sooner. If you have a dry mouth, drink small amounts of fluids with meals.
- Limit your intake of coffee, tea, and diet drinks. Drink beverages that contain calories/protein such as milk, fruit juices, milkshakes, instant breakfast drinks, or liquid nutritional supplements. Take medications with calorie-containing beverages.

## **Taste Alterations**

As a side effect of your treatment, you may experience an altered sense of taste and smell. Foods often taste too sweet or too bitter, have little flavor, or constantly smell or taste like metal. This is usually a short-term problem. If your taste has changed:

- Sip beverages like lemon or spiced tea, ginger ale, lemonade, or fruit juice.
- Suck on a lemon wedge or tart candy, such as sourballs. (Sugar-free candy is recommended.)
- Stop eating foods that cause an unpleasant taste in your mouth. Try different kinds of foods to see which taste best to you.
  - Plain starchy foods, such as bread, pasta, rice, and potatoes, tend to taste good if a dry mouth is not a problem.
  - Bland foods (i.e., bland cheese, cottage cheese, eggs, cereal, puddings, custards, cream soups, toast, and peanut butter) may be less likely to taste different than foods with stronger flavors.
  - Spicy and salty foods tend to taste good to many patients (although some complain that certain foods taste saltier than usual).
  - Fruit, especially fruits that are sour, juicy, and acidic, tend to stimulate the taste buds.
- Add sugar to mask the flavor of salty foods.
- Add cheese, bacon, ham, or onion to vegetables for more flavors.
- Add mayonnaise or salad dressing, sour cream, or yogurt to soups, sauces, and meat dishes to mask the “off” flavors.
- Try adding small amounts of flavorful seasonings, such as basil, oregano, or rosemary to your food.
- Drink your nutritional supplement cold and through a straw, if the aroma is offensive to you.

- Freshen your mouth by rinsing it with a mixture of 1 tsp. Baking soda to 2 C warm water.

For foods that taste too bitter or tart:

- Add sweeteners (e.g., honey mustard jam, jelly, fruit juice, sweet-and-sour sauce, fruited yogurt) to food.
- Serve food at room temperature, particularly meat, which can taste bitter when served hot. Prepare bitter-tasting meats in casseroles or stews, or in cold salads.
- Try to improve the flavor of meat, chicken, or fish by marinating in sweet fruit juices, Italian dressing, or sweet-and-sour sauce.
- Use plastic utensils.
- Tart foods may overcome a metallic taste. Try citrus juices, cranberry juice, pickles, or relish.

For foods that taste too sweet:

- Avoid concentrated sweets.
- Eat sour, salty, or bitter foods to lessen sweetness.
- Try Angostura aromatic bitters to help dull sweetness.
- Try *Gymnema Sylvestre*, an herbal tea of India, before eating. Professional tasters often use it because it can deaden taste buds to sweet flavors for about 20 minutes if held in the mouth for approximately 5 minutes before eating.
- Use sour fruit juices to mask sweetness.

## **Nausea/Vomiting/Diarrhea**

Nausea, vomiting, and diarrhea are some of the most treatable side effects of peg interferon, so call your doctor or nurse for help if these occur. There are prescription medications available that may help. Certain things, such as cooking odors, an empty stomach, or greasy foods, in particular, can trigger nausea. It's helpful to keep track of when your nausea occurs and what may trigger it, so you can avoid the triggers.

Here are some tips to keep in mind:

- Use medication to control nausea at onset. **DO NOT** wait.
- Try eating crackers or dry toast before getting out of bed, if you feel sick in the morning.

- Sip clear fluids slowly until nausea and/or vomiting is under control. Fluids taken at room temperature are typically better tolerated than are those that are hot or cold.
- Drink carbonated beverages, such as cola or ginger ale, to help curb nausea.
- Drink fluids to stay hydrated. Eat Popsicles, gelatin desserts, and ice cream to contribute to hydration.
- Once you are able to tolerate clear liquids, advance to foods that are easy to digest, such as oatmeal, scrambled eggs, toast, etc. Advance your diet as tolerated.
- Avoid fatty, greasy, and spicy foods, and foods with strong odors when you feel nauseated, since these foods may further increase nausea and cause progression to vomiting.
- Ease nausea and enhance flavor with tart foods like pickles (dill or sour) and lemons.
- Eat foods that improve nutrition without an overpowering smell that can cause nausea, for example, cold meat, sandwiches, fruit, cottage cheese, and other cold foods.
- Avoid being in the kitchen when meals are being prepared, if you are feeling nauseated. Sometimes the smells of food cooking will cause an increase in the nausea or an episode of vomiting.
- Eat small frequent meals (6 – 8 per day), which may be better tolerated than larger meals.
- Engage in light exercise (but not after meals), such as walking, to lessen nausea.

## **Thinning Hair**

Mild hair thinning (alopecia) is a possible side effect of peg interferon therapy. While this may increase as therapy continues, your hair will grow back over time. If you experience hair thinning:

- Avoid/limit use of peroxide-based hair dye or permanent wave solutions while on therapy. They can accelerate hair loss and hair damage. Instead, consider vegetable-based henna or vegetable-based hair color.
- Use wide-toothed combs and natural-bristle brushes; gently comb/brush only 1 – 2 times per day.
- Shampoo less frequently (1-3 times per week) and use conditioner or detangler. Use a water-filled spray bottle to spray hair on mornings when not shampooing to fix unkempt hair.

- Avoid items that apply pressure to the hair, such as caps, barrettes, ponytail clips, and hair bands, etc.
- Avoid pulsating showerheads; they exert too high a PSI and facilitate hair loss.
- Avoid/limit use of gels, freezing sprays, mousse, etc.; they make hair difficult to comb through.
- Pin a silk scarf on your pillowcase, or buy a satin pillowcase to avoid hair loss through friction or shearing effect.
- Cut your hair shorter; the rate of hair loss is slower for short hair because it is not as heavy.
- Wear scarves, wigs, toupees, turbans, caps, etc., if you feel self-conscious about hair loss.

## **Rash/Injection-Site Reactions/Itching/Dry Skin**

You may experience a reaction at the location where you inject peg interferon or a more widespread rash. *Inform your physician of any reactions or rash that develops.* You may also experience itching or dry skin.

If you experience these effects:

- Change injection sites frequently.
- Apply cool compresses before injection, and cool or warm compresses after injection, for pain.
- Add oil at the end of a bath or a colloidal oatmeal treatment early in the bath (oatmeal bath soaks or oatmeal bar soap).
- Take lukewarm baths to relieve itching, but limit baths to 30 minutes per day. Mild soaps can be used, including Dove®, Neutrogena®, and Basis®.
- Remove tags from clothing and avoid constrictive garments, as well as clothing and bedding made from wool, synthetics, or harsh fabrics, if you experience itching.
- Avoid scented and deodorant soaps, genital deodorants, and bubble baths.
- Wash clothing, undergarments, and sheets with mild soaps made for infant clothing.
- Avoid alcohol-based skin lotions, petrolatum, and mineral oil.
- Apply non-alcohol-based emollient creams (e.g., Eucerin®, Nivea®) or lotion (e.g., Lubriderm®, Alpha Keri®, Nivea®).

- Increase fluid consumption and avoid dry environments (e.g., use humidifier in the bedroom). Replace fluids lost due to fever, nausea and vomiting, or diarrhea.
- Wear sun-protective clothing and para-aminobenzoic acid (PABA)-free sunscreen when outdoors for extended periods of time.
- Take niacin and vitamin C for added nutrition.
- Try cutaneous stimulation: apply firm pressure at the site of itching, at a site contralateral to the site of itching, and at acupressure points. Rather than scratching, try rubbing or applying pressure or vibration to relieve itching.

## **Sore Mouth and Throat**

A sore mouth and throat may be side effects of your therapy. The lining of the stomach can be sensitive, and mouth sores can make it difficult for patients to eat or even swallow water. Mouth and throat infections can also cause a sore mouth. Pain control and proper mouth care are very important in treating mouth sores.

Some hints for you are:

- Drink through a straw.
- Remove dentures and rinse mouth several times a day. Keep dentures clean. Avoid denture adhesive if mouth is sore.
- Avoid alcohol and beverages containing caffeine.
- Avoid citrus fruits and highly acidic foods and beverages.
- Avoid spicy food, such as chili powder, nutmeg, pepper, curry powder, and cloves.
- Avoid salty foods.
- Avoid rough, dry, coarse foods such as raw vegetables, toast, crackers, chips, nuts, seeds, coarse grains, and cereals.
- Avoid hot or cold extremes. Eating foods at room temperature may be soothing.
- Blend or puree foods or try soft bland foods, such as mashed potatoes; casseroles; yogurt; scrambled or poached eggs; cottage cheese; custard, milkshakes; puddings; meat salads; gelatin; creamy cereals; and soft, creamy, pasta dishes.
- Use soups, margarine, cream and other sauces, and gravy liberally.
- Try a full liquid diet, which may be better tolerated, if even soft or pureed foods cause problems.

- Chew food well and wash it down with caloric beverages, alternate between drinking and eating.
- Dunk or soak foods in liquids to moisten.
- Try baby foods, which you can add to soups, casseroles, etc.
- Cut food into small pieces to be swallowed with a minimum of chewing.
- Eat cold foods (ice chips, Popsicles, sherbet) to reduce mouth pain if your mouth does not have open sores.
- Tilt head back and forward when swallowing. This may make it easier to get food down.
- Sip juices and other fluids throughout the day, and suck on sugar-free candies and gum or ice chips if you have a dry mouth.

#### Mouth care:

- Freshen your mouth by rinsing it with a mixture of 1 tsp. Baking soda to 2 C warm water.
- Brush your teeth after meals. Use a soft toothbrush.
- Avoid using over-the-counter mouthwashes because they contain alcohol.

# PATIENT INSTRUCTIONS FOR THE ADMINISTRATION OF PEG-INTRON

## A. Pre Interferon Instructions

1. Drink a minimum of 1 quart of water per day starting the day prior to injection, day of injection and 24 hours after injection.
2. Pre medicate 30 minutes prior to taking injection with acetaminophen 1000 mg orally.
3. Pre medicate 30 minutes prior to bedtime with Benadryl 25 mg if needed to aid with sleep.
4. Begin Ribavirin (capsules) the day after starting injections.
5. Take all injections at bedtime.
6. If you miss any Ribavirin doses, do not attempt to “make them up” take each dose as scheduled.
7. If side effects persist other than discussed and given in literature, call the clinic at: (210) 575-4837.

## B. Reconstitution of PEG-Intron with Sterile Water

1. Clean your work area and cover it with a clean paper towel.
2. Gather and lay out all of your supplies.
  - a. 1 (One) Vial of PEG-Intron
  - b. 2 (Two) B-D SAFETY Lock Syringes
  - c. 1 (One) Vial of 5 ml Sterile Water
  - d. 2 (Two) Alcohol Wipes
  - e. 1 (One) Sharps Container
3. Wash your hands.
4. Locate your vial of sterile water and your vial of PEG-Intron and flip the plastic top off each vial and place the vials upright on the table.
5. Wipe the top of each vial with an alcohol wipe.
6. Open your syringes (2) by removing the plastic wrapper on each of them.
7. Carefully remove the cap from one of the syringes.
8. Drew back on the plunger to get 0.7 ml of air.
9. Insert this needle into your **sterile water**. Holding the sterile water upright with one hand depress the plunger of air into the vial of sterile water.

10. With the needle still inside of the vial of sterile water, invert the bottle and pull back on the plunger withdrawing **sterile water** to the 0.7 ml mark. If any air bubbles appear in the syringe, depress all contents back into the vial and begin again.
11. Remove the syringe from the bottle of **sterile water** and inject the sterile water into the vial of **PEG-Intron**, slowly. *Direct the needle so that the stream of water falls to the side of the vial and not directly into the middle of the powder.*
12. Remove the needle from the vial and pull back the safety lock on the syringe.
13. Discard the syringe into the sharps container.
14. Roll the vial of **PEG-Intron** gently back and forth in your hands making sure all of the powder is dissolved.
15. Open the second syringe and remove the cap.
16. Pull back on the plunger and draw up air into the syringe equal to your dose \_\_\_\_\_.
17. Inject the air into your vial of **PEG-Intron** and depress the air into the vial.
18. With the needle still inside of the vial, invert the bottle and pull back on the plunger withdrawing **PEG-Intron** to the \_\_\_\_\_ mark. If any air bubbles appear in the syringe, depress all contents back into the vial and begin again.
19. Place the cap carefully back onto the needle and proceed to Step 2.

### **C. Preparing your Site**

1. Select your injection site from the diagram provided to you.
2. Wipe your injection site with an alcohol wipe and allow to air-dry. This will reduce the sting.
3. With your non-dominant hand slightly pinch up the skin around the injection site, be careful not to touch the actual site.
4. Remove the syringe being careful not to touch the needle to the table surface or skin until ready to inject.
5. Holding the syringe like a pencil, insert the needle using a quick, smooth motion at an angle of approximately 45 – 90 degrees.
6. Release the skin and remove the needle quickly. Apply light pressure to the injection site.
7. Do not rub your injection site; use a Band-Aid over the site, if necessary.

8. Pull back on the safety lock.
9. Discard syringe and vials into the sharps container.

**STORE YOUR SHARPS CONTAINER AWAY FROM SMALL CHILDREN.**

**D. Locating and Managing Injections Sites**

The best sites for injections are areas with a layer of fat between the skin and the muscle. But remember to be sure you stay away from the navel and the waistline. To reduce irritation, change the site of injection each time. To remember that last location, record injections on the schedule.

The best places to inject are: upper, outer thigh; outer portion of the arm; abdomen.