

A1.0 NL 5691 AMP  
A1.0 NL 5681 AMP  
A2.0 NL 4460 AMP

**INFORMATION FOR THE PATIENT**  
**10 mL Vial (1000 Units per vial)**

**HUMULIN<sup>®</sup> R**  
**REGULAR**  
**INSULIN HUMAN INJECTION, USP**  
**(rDNA ORIGIN)**  
**100 UNITS PER ML (U-100)**

**WARNINGS**

**THIS LILLY HUMAN INSULIN PRODUCT DIFFERS FROM ANIMAL-SOURCE INSULINS BECAUSE IT IS STRUCTURALLY IDENTICAL TO THE INSULIN PRODUCED BY YOUR BODY'S PANCREAS AND BECAUSE OF ITS UNIQUE MANUFACTURING PROCESS.**

**ANY CHANGE OF INSULIN SHOULD BE MADE CAUTIOUSLY AND ONLY UNDER MEDICAL SUPERVISION. CHANGES IN STRENGTH, MANUFACTURER, TYPE (E.G., REGULAR, NPH, ANALOG), SPECIES, OR METHOD OF MANUFACTURE MAY RESULT IN THE NEED FOR A CHANGE IN DOSAGE.**

**SOME PATIENTS TAKING HUMULIN<sup>®</sup> (HUMAN INSULIN, rDNA ORIGIN) MAY REQUIRE A CHANGE IN DOSAGE FROM THAT USED WITH OTHER INSULINS. IF AN ADJUSTMENT IS NEEDED, IT MAY OCCUR WITH THE FIRST DOSE OR DURING THE FIRST SEVERAL WEEKS OR MONTHS.**

**DIABETES**

Insulin is a hormone produced by the pancreas, a large gland that lies near the stomach. This hormone is necessary for the body's correct use of food, especially sugar. Diabetes occurs when the pancreas does not make enough insulin to meet your body's needs.

To control your diabetes, your doctor has prescribed injections of insulin products to keep your blood glucose at a near-normal level. You have been instructed to test your blood and/or your urine regularly for glucose. Studies have shown that some chronic complications of diabetes such as eye disease, kidney disease, and nerve disease can be significantly reduced if the blood sugar is maintained as close to normal as possible. The American Diabetes Association recommends that if your pre-meal glucose levels are consistently above 130 mg/dL or your hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) is more than 7%, you should talk to your doctor. A change in your diabetes therapy may be needed. If your blood tests consistently show below-normal glucose levels, you should also let your doctor know. Proper control of your diabetes requires close and constant cooperation with your doctor. Despite diabetes, you can lead an active and healthy life if you eat a balanced diet, exercise regularly, and take your insulin injections as prescribed by your doctor.

Always keep an extra supply of insulin as well as a spare syringe and needle on hand. Always wear diabetic identification so that appropriate treatment can be given if complications occur away from home.

## REGULAR HUMAN INSULIN

### Description

Humulin is synthesized in a special non-disease-producing laboratory strain of *Escherichia coli* bacteria that has been genetically altered to produce human insulin. Humulin R [Regular insulin human injection, USP (rDNA origin)] consists of zinc-insulin crystals dissolved in a clear fluid. Humulin R has had nothing added to change the speed or length of its action. It takes effect rapidly and has a relatively short duration of activity (4 to 12 hours) as compared with other insulins. The time course of action of any insulin may vary considerably in different individuals or at different times in the same individual. As with all insulin preparations, the duration of action of Humulin R is dependent on dose, site of injection, blood supply, temperature, and physical activity. Humulin R is a sterile solution and is for subcutaneous injection. It should not be used intramuscularly. The concentration of Humulin R is 100 units/mL (U-100).

### Identification

Human insulin from Eli Lilly and Company has the trademark Humulin. Your doctor has prescribed the type of insulin that he/she believes is best for you.

### **DO NOT USE ANY OTHER INSULIN EXCEPT ON YOUR DOCTOR'S ADVICE AND DIRECTION.**

Always check the carton and the bottle label for the name and letter designation of the insulin you receive from your pharmacy to make sure it is the same as prescribed by your doctor.

Always check the appearance of your bottle of Humulin R before withdrawing each dose. Humulin R is a clear and colorless liquid with a water-like appearance and consistency.

Do not use Humulin R:

- if it appears cloudy, thickened, or slightly colored, or
- if solid particles are visible.

If you see anything unusual in the appearance of Humulin R solution in your bottle or notice your insulin requirements changing, talk to your doctor.

### Storage

**Not in-use (unopened):** Humulin R bottles not in-use should be stored in a refrigerator, but not in the freezer.

**In-use (opened):** The Humulin R bottle you are currently using can be kept unrefrigerated as long as it is kept as cool as possible [below 86°F (30°C)] away from heat and light.

**Do not use Humulin R after the expiration date stamped on the label or if it has been frozen.**

## INSTRUCTIONS FOR INSULIN VIAL USE

### NEVER SHARE NEEDLES AND SYRINGES.

### Correct Syringe Type

Doses of insulin are measured in **units**. U-100 insulin contains 100 units/mL (1 mL=1 cc). With Humulin R, it is important to use a syringe that is marked for U-100 insulin preparations. Failure to use the proper syringe can lead to a mistake in dosage, causing serious problems for you, such as a blood glucose level that is too low or too high.

### Syringe Use

To help avoid contamination and possible infection, follow these instructions exactly.

Disposable syringes and needles should be used only once and then discarded by placing the used needle in a puncture-resistant disposable container. Properly dispose of the puncture-resistant container as directed by your Health Care Professional.

### Preparing the Dose

1. Wash your hands.
2. Inspect the insulin. Humulin R solution should look clear and colorless. Do not use Humulin R if it appears cloudy, thickened, or slightly colored, or if you see particles in the solution. Do not use Humulin R if you notice anything unusual in its appearance.

3. If using a new Humulin R bottle, flip off the plastic protective cap, but **do not** remove the stopper. Wipe the top of the bottle with an alcohol swab.
4. If you are mixing insulins, refer to the “Mixing Humulin R with Longer-Acting Human Insulins” section below.
5. Draw an amount of air into the syringe that is equal to the Humulin R dose. Put the needle through rubber top of the Humulin R bottle and inject the air into the bottle.
6. Turn the Humulin R bottle and syringe upside down. Hold the bottle and syringe firmly in one hand.
7. Making sure the tip of the needle is in the Humulin R solution, withdraw the correct dose of Humulin R into the syringe.
8. Before removing the needle from the Humulin R bottle, check the syringe for air bubbles. If bubbles are present, hold the syringe straight up and tap its side until the bubbles float to the top. Push the bubbles out with the plunger and then withdraw the correct dose.
9. Remove the needle from the bottle and lay the syringe down so that the needle does not touch anything.
10. If you do not need to mix your Humulin R with a longer-acting insulin, go to the “Injection Instructions” section below and follow the directions.

### **Mixing Humulin R with Longer-Acting Human Insulins**

1. Humulin R should be mixed with longer-acting human insulins only on the advice of your doctor.
2. Draw an amount of air into the syringe that is equal to the amount of longer-acting insulin you are taking. Insert the needle into the longer-acting insulin bottle and inject the air. Withdraw the needle.
3. Draw an amount of air into the syringe that is equal to the amount of Humulin R you are taking. Insert the needle into the Humulin R bottle and inject the air, but **do not** withdraw the needle.
4. Turn the Humulin R bottle and syringe upside down.
5. Making sure the tip of the needle is in the Humulin R solution, withdraw the correct dose of Humulin R into the syringe.
6. Before removing the needle from the Humulin R bottle, check the syringe for air bubbles. If bubbles are present, hold the syringe straight up and tap its side until the bubbles float to the top. Push the bubbles out with the plunger and then withdraw the correct dose.
7. Remove the syringe with the needle from the Humulin R bottle and insert it into the longer-acting insulin bottle. Turn the longer-acting insulin bottle and syringe upside down. Hold the bottle and syringe firmly in one hand and shake gently. Making sure the tip of the needle is in the longer-acting insulin, withdraw the correct dose of longer-acting insulin.
8. Remove the needle from the bottle and lay the syringe down so that the needle does not touch anything.
9. Follow the directions under “Injection Instructions” section below.

Follow your doctor’s instructions on whether to mix your insulins ahead of time or just before giving your injection. It is important to be consistent in your method.

Syringes from different manufacturers may vary in the amount of space between the bottom line and the needle. Because of this, do not change:

- the sequence of mixing, or
- the model and brand of syringe or needle that your doctor has prescribed.

### **Injection Instructions**

1. To avoid tissue damage, choose a site for each injection that is at least 1/2 inch from the previous injection site. The usual sites of injection are abdomen, thighs, and arms.
2. Cleanse the skin with alcohol where the injection is to be made.
3. With one hand, stabilize the skin by spreading it or pinching up a large area.

4. Insert the needle as instructed by your doctor.
5. Push the plunger in as far as it will go.
6. Pull the needle out and apply gentle pressure over the injection site for several seconds.  
**Do not rub the area.**
7. Place the used needle in a puncture-resistant disposable container and properly dispose of the puncture-resistant container as directed by your Health Care Professional.

### **DOSAGE**

Your doctor has told you which insulin to use, how much, and when and how often to inject it. Because each patient's diabetes is different, this schedule has been individualized for you.

Your usual dose of Humulin R may be affected by changes in your diet, activity, or work schedule. Carefully follow your doctor's instructions to allow for these changes. Other things that may affect your Humulin R dose are:

#### **Illness**

Illness, especially with nausea and vomiting, may cause your insulin requirements to change. Even if you are not eating, you will still require insulin. You and your doctor should establish a sick day plan for you to use in case of illness. When you are sick, test your blood glucose frequently. If instructed by your doctor, test your ketones and report the results to your doctor.

#### **Pregnancy**

Good control of diabetes is especially important for you and your unborn baby. Pregnancy may make managing your diabetes more difficult. If you are planning to have a baby, are pregnant, or are nursing a baby, talk to your doctor.

#### **Medication**

Insulin requirements may be increased if you are taking other drugs with blood-glucose-raising activity, such as oral contraceptives, corticosteroids, or thyroid replacement therapy. Insulin requirements may be reduced in the presence of drugs that lower blood glucose or affect how your body responds to insulin, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, alcohol, certain antidepressants and some kidney and blood pressure medicines. Your Health Care Professional may be aware of other medications that may affect your diabetes control. Therefore, always discuss any medications you are taking with your doctor.

#### **Exercise**

Exercise may lower your body's need for insulin during and for some time after the physical activity. Exercise may also speed up the effect of an insulin dose, especially if the exercise involves the area of injection site (for example, the leg should not be used for injection just prior to running). Discuss with your doctor how you should adjust your insulin regimen to accommodate exercise.

#### **Travel**

When traveling across more than 2 time zones, you should talk to your doctor concerning adjustments in your insulin schedule.

### **COMMON PROBLEMS OF DIABETES**

#### **Hypoglycemia (Low Blood Sugar)**

Hypoglycemia (too little glucose in the blood) is one of the most frequent adverse events experienced by insulin users. It can be brought about by:

1. **Missing or delaying meals.**
2. Taking too much insulin.
3. Exercising or working more than usual.
4. An infection or illness associated with diarrhea or vomiting.
5. A change in the body's need for insulin.
6. Diseases of the adrenal, pituitary, or thyroid gland, or progression of kidney or liver disease.

7. Interactions with certain drugs, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, certain antidepressants and some kidney and blood pressure medicines.
8. Consumption of alcoholic beverages.

Symptoms of mild to moderate hypoglycemia may occur suddenly and can include:

- sweating
- dizziness
- palpitation
- tremor
- hunger
- restlessness
- tingling in the hands, feet, lips, or tongue
- lightheadedness
- inability to concentrate
- headache
- drowsiness
- sleep disturbances
- anxiety
- blurred vision
- slurred speech
- depressed mood
- irritability
- abnormal behavior
- unsteady movement
- personality changes

Signs of severe hypoglycemia can include:

- disorientation
- unconsciousness
- seizures
- death

Therefore, it is important that assistance be obtained immediately.

Early warning symptoms of hypoglycemia may be different or less pronounced under certain conditions, such as long duration of diabetes, diabetic nerve disease, use of medications such as beta-blockers, changing insulin preparations, or intensified control (3 or more insulin injections per day) of diabetes.

**A few patients who have experienced hypoglycemic reactions after transfer from animal-source insulin to human insulin have reported that the early warning symptoms of hypoglycemia were less pronounced or different from those experienced with their previous insulin.**

Without recognition of early warning symptoms, you may not be able to take steps to avoid more serious hypoglycemia. Be alert for all of the various types of symptoms that may indicate hypoglycemia. Patients who experience hypoglycemia without early warning symptoms should monitor their blood glucose frequently, especially prior to activities such as driving. If the blood glucose is below your normal fasting glucose, you should consider eating or drinking sugar-containing foods to treat your hypoglycemia.

Mild to moderate hypoglycemia may be treated by eating foods or drinks that contain sugar. Patients should always carry a quick source of sugar, such as hard candy or glucose tablets. More severe hypoglycemia may require the assistance of another person. Patients who are unable to take sugar orally or who are unconscious require an injection of glucagon or should be treated with intravenous administration of glucose at a medical facility.

You should learn to recognize your own symptoms of hypoglycemia. If you are uncertain about these symptoms, you should monitor your blood glucose frequently to help you learn to recognize the symptoms that you experience with hypoglycemia.

If you have frequent episodes of hypoglycemia or experience difficulty in recognizing the symptoms, you should talk to your doctor to discuss possible changes in therapy, meal plans, and/or exercise programs to help you avoid hypoglycemia.

### **Hyperglycemia (High Blood Sugar) and Diabetic Ketoacidosis (DKA)**

Hyperglycemia (too much glucose in the blood) may develop if your body has too little insulin. Hyperglycemia can be brought about by any of the following:

1. Omitting your insulin or taking less than your doctor has prescribed.
2. Eating significantly more than your meal plan suggests.
3. Developing a fever, infection, or other significant stressful situation.

In patients with type 1 or insulin-dependent diabetes, prolonged hyperglycemia can result in DKA (a life-threatening emergency). The first symptoms of DKA usually come on gradually, over a period of hours or days, and include a drowsy feeling, flushed face, thirst, loss of appetite, and fruity odor on the breath. With DKA, blood and urine tests show large amounts of glucose and ketones. Heavy breathing and a rapid pulse are more severe symptoms. If uncorrected, prolonged hyperglycemia or DKA can lead to nausea, vomiting, stomach pain, dehydration, loss of consciousness, or death. Therefore, it is important that you obtain medical assistance immediately.

### **Lipodystrophy**

Rarely, administration of insulin subcutaneously can result in lipoatrophy (seen as an apparent depression of the skin) or lipohypertrophy (seen as a raised area of the skin). If you notice either of these conditions, talk to your doctor. A change in your injection technique may help alleviate the problem.

### **Allergy**

*Local Allergy* — Patients occasionally experience redness, swelling, and itching at the site of injection. This condition, called local allergy, usually clears up in a few days to a few weeks. In some instances, this condition may be related to factors other than insulin, such as irritants in the skin cleansing agent or poor injection technique. If you have local reactions, talk to your doctor.

*Systemic Allergy* — Less common, but potentially more serious, is generalized allergy to insulin, which may cause rash over the whole body, shortness of breath, wheezing, reduction in blood pressure, fast pulse, or sweating. Severe cases of generalized allergy may be life threatening. If you think you are having a generalized allergic reaction to insulin, call your doctor immediately.

## **ADDITIONAL INFORMATION**

Information about diabetes may be obtained from your diabetes educator.

Additional information about diabetes and Humulin can be obtained by calling The Lilly Answers Center at 1-800-LillyRx (1-800-545-5979) or by visiting [www.LillyDiabetes.com](http://www.LillyDiabetes.com).

Patient Information issued/revised Month dd, yyyy

**Vials manufactured by**  
**Eli Lilly and Company, Indianapolis, IN 46285, USA or**  
**Hospira, Inc., Lake Forest, IL 60045, USA or**  
**Lilly France, F-67640 Fegersheim, France**

**for Eli Lilly and Company, Indianapolis, IN 46285, USA**

A1.0 NL 5691 AMP

A1.0 NL5681 AMP

A2.0 NL 4460 AMP

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A1.0 NL 5711 AMP  
A1.0 NL 6792 AMP

**INFORMATION FOR THE PATIENT**

**10 mL Vial (1000 Units per vial)**

**HUMULIN<sup>®</sup> N  
NPH  
HUMAN INSULIN (rDNA ORIGIN)  
ISOPHANE SUSPENSION**

**100 UNITS PER ML (U-100)**

**WARNINGS**

**THIS LILLY HUMAN INSULIN PRODUCT DIFFERS FROM ANIMAL-SOURCE INSULINS BECAUSE IT IS STRUCTURALLY IDENTICAL TO THE INSULIN PRODUCED BY YOUR BODY'S PANCREAS AND BECAUSE OF ITS UNIQUE MANUFACTURING PROCESS.**

**ANY CHANGE OF INSULIN SHOULD BE MADE CAUTIOUSLY AND ONLY UNDER MEDICAL SUPERVISION. CHANGES IN STRENGTH, MANUFACTURER, TYPE (E.G., REGULAR, NPH, ANALOG), SPECIES, OR METHOD OF MANUFACTURE MAY RESULT IN THE NEED FOR A CHANGE IN DOSAGE.**

**SOME PATIENTS TAKING HUMULIN<sup>®</sup> (HUMAN INSULIN, rDNA ORIGIN) MAY REQUIRE A CHANGE IN DOSAGE FROM THAT USED WITH OTHER INSULINS. IF AN ADJUSTMENT IS NEEDED, IT MAY OCCUR WITH THE FIRST DOSE OR DURING THE FIRST SEVERAL WEEKS OR MONTHS.**

**DIABETES**

Insulin is a hormone produced by the pancreas, a large gland that lies near the stomach. This hormone is necessary for the body's correct use of food, especially sugar. Diabetes occurs when the pancreas does not make enough insulin to meet your body's needs.

To control your diabetes, your doctor has prescribed injections of insulin products to keep your blood glucose at a near-normal level. You have been instructed to test your blood and/or your urine regularly for glucose. Studies have shown that some chronic complications of diabetes such as eye disease, kidney disease, and nerve disease can be significantly reduced if the blood sugar is maintained as close to normal as possible. The American Diabetes Association recommends that if your pre-meal glucose levels are consistently above 130 mg/dL or your hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) is more than 7%, you should talk to your doctor. A change in your diabetes therapy may be needed. If your blood tests consistently show below-normal glucose levels, you should also let your doctor know. Proper control of your diabetes requires close and constant cooperation with your doctor. Despite diabetes, you can lead an active and healthy life if you eat a balanced diet, exercise regularly, and take your insulin injections as prescribed by your doctor.

Always keep an extra supply of insulin as well as a spare syringe and needle on hand. Always wear diabetic identification so that appropriate treatment can be given if complications occur away from home.

## NPH HUMAN INSULIN

### Description

Humulin is synthesized in a special non-disease-producing laboratory strain of *Escherichia coli* bacteria that has been genetically altered to produce human insulin. Humulin N [Human insulin (rDNA origin) isophane suspension] is a crystalline suspension of human insulin with protamine and zinc providing an intermediate-acting insulin with a slower onset of action and a longer duration of activity (up to 24 hours) than that of Regular human insulin. The time course of action of any insulin may vary considerably in different individuals or at different times in the same individual. As with all insulin preparations, the duration of action of Humulin N is dependent on dose, site of injection, blood supply, temperature, and physical activity. Humulin N is a sterile suspension and is for subcutaneous injection only. It should not be used intravenously or intramuscularly. The concentration of Humulin N is 100 units/mL (U-100).

### Identification

Human insulin from Eli Lilly and Company has the trademark Humulin. Your doctor has prescribed the type of insulin that he/she believes is best for you.

**DO NOT USE ANY OTHER INSULIN EXCEPT ON YOUR DOCTOR'S ADVICE AND DIRECTION.**

Always check the carton and the bottle label for the name and letter designation of the insulin you receive from your pharmacy to make sure it is the same as prescribed by your doctor.

Always check the appearance of your bottle of Humulin N before withdrawing each dose. Before each injection the Humulin N bottle must be carefully shaken or rotated several times to completely mix the insulin. Humulin N suspension should look uniformly cloudy or milky after mixing. If not, repeat the above steps until contents are mixed.

Do not use Humulin N:

- if the insulin substance (the white material) remains at the bottom of the bottle after mixing or
- if there are clumps in the insulin after mixing, or
- if solid white particles stick to the bottom or wall of the bottle, giving a frosted appearance.

If you see anything unusual in the appearance of Humulin N suspension in your bottle or notice your insulin requirements changing, talk to your doctor.

### Storage

**Not in-use (unopened):** Humulin N bottles not in-use should be stored in a refrigerator, but not in the freezer.

**In-use (opened):** The Humulin N bottle you are currently using can be kept unrefrigerated as long as it is kept as cool as possible [below 86°F (30°C)] away from heat and light.

**Do not use Humulin N after the expiration date stamped on the label or if it has been frozen.**

## INSTRUCTIONS FOR INSULIN VIAL USE

**NEVER SHARE NEEDLES AND SYRINGES.**

### Correct Syringe Type

Doses of insulin are measured in **units**. U-100 insulin contains 100 units/mL (1 mL=1 cc). With Humulin N, it is important to use a syringe that is marked for U-100 insulin preparations. Failure to use the proper syringe can lead to a mistake in dosage, causing serious problems for you, such as a blood glucose level that is too low or too high.

### Syringe Use

To help avoid contamination and possible infection, follow these instructions exactly.



Disposable syringes and needles should be used only once and then discarded by placing the used needle in a puncture-resistant disposable container. Properly dispose of the puncture-resistant container as directed by your Health Care Professional.

### Preparing the Dose

1. Wash your hands.
2. Carefully shake or rotate the bottle of insulin several times to completely mix the insulin.
3. Inspect the insulin. Humulin N suspension should look uniformly cloudy or milky. Do not use Humulin N if you notice anything unusual in its appearance.
4. If using a new Humulin N bottle, flip off the plastic protective cap, but **do not** remove the stopper. Wipe the top of the bottle with an alcohol swab.
5. If you are mixing insulins, refer to the “Mixing Humulin N and Regular Human Insulin” section below.
6. Draw an amount of air into the syringe that is equal to the Humulin N dose. Put the needle through rubber top of the Humulin N bottle and inject the air into the bottle.
7. Turn the Humulin N bottle and syringe upside down. Hold the bottle and syringe firmly in one hand and shake gently.
8. Making sure the tip of the needle is in the Humulin N suspension, withdraw the correct dose of Humulin N into the syringe.
9. Before removing the needle from the Humulin N bottle, check the syringe for air bubbles. If bubbles are present, hold the syringe straight up and tap its side until the bubbles float to the top. Push the bubbles out with the plunger and then withdraw the correct dose.
10. Remove the needle from the bottle and lay the syringe down so that the needle does not touch anything.
11. If you do not need to mix your Humulin N with Regular human insulin, go to the “Injection Instructions” section below and follow the directions.

### Mixing Humulin N and Regular Human Insulin (Humulin R)

1. Humulin N should be mixed with Humulin R only on the advice of your doctor.
2. Draw an amount of air into the syringe that is equal to the amount of Humulin N you are taking. Insert the needle into the Humulin N bottle and inject the air. Withdraw the needle.
3. Draw an amount of air into the syringe that is equal to the amount of Humulin R you are taking. Insert the needle into the Humulin R bottle and inject the air, but **do not** withdraw the needle.
4. Turn the Humulin R bottle and syringe upside down.
5. Making sure the tip of the needle is in the Humulin R solution, withdraw the correct dose of Humulin R into the syringe.
6. Before removing the needle from the Humulin R bottle, check the syringe for air bubbles. If bubbles are present, hold the syringe straight up and tap its side until the bubbles float to the top. Push the bubbles out with the plunger and then withdraw the correct dose.
7. Remove the syringe with the needle from the Humulin R bottle and insert it into the Humulin N bottle. Turn the Humulin R bottle and syringe upside down. Hold the bottle and syringe firmly in one hand and shake gently. Making sure the tip of the needle is in the Humulin N, withdraw the correct dose of Humulin N.
8. Remove the needle from the bottle and lay the syringe down so that the needle does not touch anything.
9. Follow the directions under “Injection Instructions” section below.

Follow your doctor’s instructions on whether to mix your insulins ahead of time or just before giving your injection. It is important to be consistent in your method.

Syringes from different manufacturers may vary in the amount of space between the bottom line and the needle. Because of this, do not change:

- the sequence of mixing, or
- the model and brand of syringe or needle that your doctor has prescribed.

### **Injection Instructions**

1. To avoid tissue damage, choose a site for each injection that is at least 1/2 inch from the previous injection site. The usual sites of injection are abdomen, thighs, and arms.
2. Cleanse the skin with alcohol where the injection is to be made.
3. With one hand, stabilize the skin by spreading it or pinching up a large area.
4. Insert the needle as instructed by your doctor.
5. Push the plunger in as far as it will go.
6. Pull the needle out and apply gentle pressure over the injection site for several seconds.  
**Do not rub the area.**
7. Place the used needle in a puncture-resistant disposable container and properly dispose of the puncture-resistant container as directed by your Health Care Professional.

### **DOSAGE**

Your doctor has told you which insulin to use, how much, and when and how often to inject it. Because each patient's diabetes is different, this schedule has been individualized for you.

Your usual dose of Humulin N may be affected by changes in your diet, activity, or work schedule. Carefully follow your doctor's instructions to allow for these changes. Other things that may affect your Humulin N dose are:

### **Illness**

Illness, especially with nausea and vomiting, may cause your insulin requirements to change. Even if you are not eating, you will still require insulin. You and your doctor should establish a sick day plan for you to use in case of illness. When you are sick, test your blood glucose frequently. If instructed by your doctor, test your ketones and report the results to your doctor.

### **Pregnancy**

Good control of diabetes is especially important for you and your unborn baby. Pregnancy may make managing your diabetes more difficult. If you are planning to have a baby, are pregnant, or are nursing a baby, talk to your doctor.

### **Medication**

Insulin requirements may be increased if you are taking other drugs with blood-glucose-raising activity, such as oral contraceptives, corticosteroids, or thyroid replacement therapy. Insulin requirements may be reduced in the presence of drugs that lower blood glucose or affect how your body responds to insulin, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, alcohol, certain antidepressants and some kidney and blood pressure medicines. Your Health Care Professional may be aware of other medications that may affect your diabetes control. Therefore, always discuss any medications you are taking with your doctor.

### **Exercise**

Exercise may lower your body's need for insulin during and for some time after the physical activity. Exercise may also speed up the effect of an insulin dose, especially if the exercise involves the area of injection site (for example, the leg should not be used for injection just prior to running). Discuss with your doctor how you should adjust your insulin regimen to accommodate exercise.

### **Travel**

When traveling across more than 2 time zones, you should talk to your doctor concerning adjustments in your insulin schedule.

## COMMON PROBLEMS OF DIABETES

### Hypoglycemia (Low Blood Sugar)

Hypoglycemia (too little glucose in the blood) is one of the most frequent adverse events experienced by insulin users. It can be brought about by:

1. **Missing or delaying meals.**
2. Taking too much insulin.
3. Exercising or working more than usual.
4. An infection or illness associated with diarrhea or vomiting.
5. A change in the body's need for insulin.
6. Diseases of the adrenal, pituitary, or thyroid gland, or progression of kidney or liver disease.
7. Interactions with certain drugs, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, certain antidepressants and some kidney and blood pressure medicines.
8. Consumption of alcoholic beverages.

Symptoms of mild to moderate hypoglycemia may occur suddenly and can include:

- sweating
- dizziness
- palpitation
- tremor
- hunger
- restlessness
- tingling in the hands, feet, lips, or tongue
- lightheadedness
- inability to concentrate
- headache
- drowsiness
- sleep disturbances
- anxiety
- blurred vision
- slurred speech
- depressed mood
- irritability
- abnormal behavior
- unsteady movement
- personality changes

Signs of severe hypoglycemia can include:

- disorientation
- unconsciousness
- seizures
- death

Therefore, it is important that assistance be obtained immediately.

Early warning symptoms of hypoglycemia may be different or less pronounced under certain conditions, such as long duration of diabetes, diabetic nerve disease, use of medications such as beta-blockers, changing insulin preparations, or intensified control (3 or more insulin injections per day) of diabetes.

**A few patients who have experienced hypoglycemic reactions after transfer from animal-source insulin to human insulin have reported that the early warning symptoms of hypoglycemia were less pronounced or different from those experienced with their previous insulin.**

Without recognition of early warning symptoms, you may not be able to take steps to avoid more serious hypoglycemia. Be alert for all of the various types of symptoms that may indicate hypoglycemia. Patients who experience hypoglycemia without early warning symptoms should monitor their blood glucose frequently, especially prior to activities such as driving. If the blood glucose is below your normal fasting glucose, you should consider eating or drinking sugar-containing foods to treat your hypoglycemia.

Mild to moderate hypoglycemia may be treated by eating foods or drinks that contain sugar. Patients should always carry a quick source of sugar, such as hard candy or glucose tablets. More severe hypoglycemia may require the assistance of another person. Patients who are unable to take sugar orally or who are unconscious require an injection of glucagon or should be treated with intravenous administration of glucose at a medical facility.

You should learn to recognize your own symptoms of hypoglycemia. If you are uncertain about these symptoms, you should monitor your blood glucose frequently to help you learn to recognize the symptoms that you experience with hypoglycemia.

If you have frequent episodes of hypoglycemia or experience difficulty in recognizing the symptoms, you should talk to your doctor to discuss possible changes in therapy, meal plans, and/or exercise programs to help you avoid hypoglycemia.

### **Hyperglycemia (High Blood Sugar) and Diabetic Ketoacidosis (DKA)**

Hyperglycemia (too much glucose in the blood) may develop if your body has too little insulin. Hyperglycemia can be brought about by any of the following:

1. Omitting your insulin or taking less than your doctor has prescribed.
2. Eating significantly more than your meal plan suggests.
3. Developing a fever, infection, or other significant stressful situation.

In patients with type 1 or insulin-dependent diabetes, prolonged hyperglycemia can result in DKA (a life-threatening emergency). The first symptoms of DKA usually come on gradually, over a period of hours or days, and include a drowsy feeling, flushed face, thirst, loss of appetite, and fruity odor on the breath. With DKA, blood and urine tests show large amounts of glucose and ketones. Heavy breathing and a rapid pulse are more severe symptoms. If uncorrected, prolonged hyperglycemia or DKA can lead to nausea, vomiting, stomach pain, dehydration, loss of consciousness, or death. Therefore, it is important that you obtain medical assistance immediately.

### **Lipodystrophy**

Rarely, administration of insulin subcutaneously can result in lipoatrophy (seen as an apparent depression of the skin) or lipohypertrophy (seen as a raised area of the skin). If you notice either of these conditions, talk to your doctor. A change in your injection technique may help alleviate the problem.

### **Allergy**

*Local Allergy* — Patients occasionally experience redness, swelling, and itching at the site of injection. This condition, called local allergy, usually clears up in a few days to a few weeks. In some instances, this condition may be related to factors other than insulin, such as irritants in the skin cleansing agent or poor injection technique. If you have local reactions, talk to your doctor.

*Systemic Allergy* — Less common, but potentially more serious, is generalized allergy to insulin, which may cause rash over the whole body, shortness of breath, wheezing, reduction in blood pressure, fast pulse, or sweating. Severe cases of generalized allergy may be life threatening. If you think you are having a generalized allergic reaction to insulin, call your doctor immediately.

### **ADDITIONAL INFORMATION**

Information about diabetes may be obtained from your diabetes educator.

Additional information about diabetes and Humulin can be obtained by calling The Lilly Answers Center at 1-800-LillyRx (1-800-545-5979) or by visiting [www.LillyDiabetes.com](http://www.LillyDiabetes.com).

Patient Information issued/revised Month dd, yyyy

**Vials manufactured by**  
**Eli Lilly and Company, Indianapolis, IN 46285, USA or**  
**Lilly France, F-67640 Fegersheim, France**

**for Eli Lilly and Company, Indianapolis, IN 46285, USA**

A1.0 NL 5711 AMP  
A1.0 NL 6792 AMP

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A1.0 NL 3682 AMP  
A6.0 PA 9134 FSAMP

**INFORMATION FOR THE PATIENT**  
**3 ML DISPOSABLE INSULIN DELIVERY DEVICE**

**HUMULIN<sup>®</sup> N Pen**  
**NPH**  
**HUMAN INSULIN**  
**(rDNA ORIGIN) ISOPHANE SUSPENSION**  
**100 UNITS PER ML (U-100)**

**WARNINGS**

**THIS LILLY HUMAN INSULIN PRODUCT DIFFERS FROM ANIMAL-SOURCE INSULINS BECAUSE IT IS STRUCTURALLY IDENTICAL TO THE INSULIN PRODUCED BY YOUR BODY'S PANCREAS AND BECAUSE OF ITS UNIQUE MANUFACTURING PROCESS.**

**ANY CHANGE OF INSULIN SHOULD BE MADE CAUTIOUSLY AND ONLY UNDER MEDICAL SUPERVISION. CHANGES IN STRENGTH, MANUFACTURER, TYPE (E.G., REGULAR, NPH, ANALOG), SPECIES, OR METHOD OF MANUFACTURE MAY RESULT IN THE NEED FOR A CHANGE IN DOSAGE.**

**SOME PATIENTS TAKING HUMULIN<sup>®</sup> (HUMAN INSULIN, rDNA ORIGIN) MAY REQUIRE A CHANGE IN DOSAGE FROM THAT USED WITH OTHER INSULINS. IF AN ADJUSTMENT IS NEEDED, IT MAY OCCUR WITH THE FIRST DOSE OR DURING THE FIRST SEVERAL WEEKS OR MONTHS.**

**TO OBTAIN AN ACCURATE DOSE, CAREFULLY READ AND FOLLOW THE INSULIN DELIVERY DEVICE USER MANUAL AND THIS "INFORMATION FOR THE PATIENT" INSERT BEFORE USING THIS PRODUCT.**

**BEFORE EACH INJECTION, YOU SHOULD PRIME THE PEN, A NECESSARY STEP TO MAKE SURE THE PEN IS READY TO DOSE. PRIMING THE PEN IS IMPORTANT TO CONFIRM THAT INSULIN COMES OUT WHEN YOU PUSH THE INJECTION BUTTON AND TO REMOVE AIR THAT MAY COLLECT IN THE INSULIN CARTRIDGE DURING NORMAL USE. IF YOU DO NOT PRIME, YOU MAY RECEIVE TOO MUCH OR TOO LITTLE INSULIN (*see also* INSTRUCTIONS FOR INSULIN PEN USE section).**

**DIABETES**

Insulin is a hormone produced by the pancreas, a large gland that lies near the stomach. This hormone is necessary for the body's correct use of food, especially sugar. Diabetes occurs when the pancreas does not make enough insulin to meet your body's needs.

To control your diabetes, your doctor has prescribed injections of insulin products to keep your blood glucose at a near-normal level. You have been instructed to test your blood and/or your urine regularly for glucose. Studies have shown that some chronic complications of diabetes such as eye disease, kidney disease, and nerve disease can be significantly reduced if the blood sugar is maintained as close to normal as possible. The American Diabetes Association recommends that if your pre-meal glucose levels are consistently above 130 mg/dL or your hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) is more than 7%, you should talk to your doctor. A change in your diabetes therapy may be needed. If your blood tests consistently show below-normal glucose



levels, you should also let your doctor know. Proper control of your diabetes requires close and constant cooperation with your doctor. Despite diabetes, you can lead an active and healthy life if you eat a balanced diet, exercise regularly, and take your insulin injections as prescribed by your doctor.

Always keep an extra supply of insulin as well as a spare syringe and needle on hand. Always wear diabetic identification so that appropriate treatment can be given if complications occur away from home.

## NPH HUMAN INSULIN

### Description

Humulin is synthesized in a special non-disease-producing laboratory strain of *Escherichia coli* bacteria that has been genetically altered to produce human insulin. Humulin N [Human insulin (rDNA origin) isophane suspension] is a crystalline suspension of human insulin with protamine and zinc providing an intermediate-acting insulin with a slower onset of action and a longer duration of activity (up to 24 hours) than that of Regular human insulin. The time course of action of any insulin may vary considerably in different individuals or at different times in the same individual. As with all insulin preparations, the duration of action of Humulin N is dependent on dose, site of injection, blood supply, temperature, and physical activity. Humulin N is a sterile suspension and is for subcutaneous injection only. It should not be used intravenously or intramuscularly. The concentration of Humulin N is 100 units/mL (U-100).

### Identification

Human insulin from Eli Lilly and Company has the trademark Humulin. Your doctor has prescribed the type of insulin that he/she believes is best for you.

**DO NOT USE ANY OTHER INSULIN EXCEPT ON YOUR DOCTOR'S ADVICE AND DIRECTION.**

**The Humulin N Pen is available in boxes of 5 disposable insulin delivery devices ("insulin Pens"). The Humulin N Pen is not designed to allow any other insulin to be mixed in its cartridge, or for the cartridge to be removed.**

Always check the carton and the Pen label for the name and letter designation of the insulin you receive from your pharmacy to make sure it is the same as prescribed by your doctor.

Always check the appearance of Humulin N suspension in your insulin Pen before using. A cartridge of Humulin N contains a small glass bead to assist in mixing. Roll the Pen between the palms 10 times (*see* Figure 1). Holding the Pen by one end, invert it 180° slowly 10 times to allow the small glass bead to travel the full length with each inversion (*see* Figure 2).

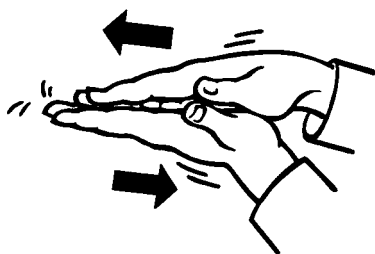


Figure 1.

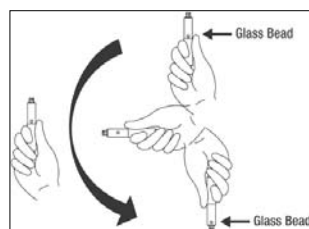


Figure 2.

Humulin N suspension should look uniformly cloudy or milky after mixing. If not, repeat the above steps until contents are mixed. Pens containing Humulin N suspension should be examined frequently.

Do not use Humulin N:

- if the insulin substance (the white material) remains visibly separated from the liquid after mixing or

- if there are clumps in the insulin after mixing, or
- if solid white particles stick to the walls of the cartridge, giving a frosted appearance.

If you see anything unusual in the appearance of the Humulin N suspension in your Pen or notice your insulin requirements changing, talk to your doctor.

Never attempt to remove the cartridge from the Humulin N Pen. Inspect the cartridge through the clear cartridge holder.

### **Storage**

**Not in-use (unopened):** Humulin N Pens not in-use should be stored in a refrigerator, but not in the freezer.

**In-use (opened):** Humulin N Pens in-use should **NOT** be refrigerated but should be kept at room temperature [below 86°F (30°C)] away from direct heat and light. The Humulin N Pen you are currently using must be discarded **2 weeks** after the first use, even if it still contains Humulin N.

**Do not use Humulin N after the expiration date stamped on the label or if it has been frozen.**

## **INSTRUCTIONS FOR INSULIN PEN USE**

**It is important to read, understand, and follow the instructions in the Insulin Delivery Device User Manual before using. Failure to follow instructions may result in getting too much or too little insulin. The needle must be changed and the Pen must be primed before each injection to make sure the Pen is ready to dose. Performing these steps before each injection is important to confirm that insulin comes out when you push the injection button, and to remove air that may collect in the insulin cartridge during normal use.**

**Every time you inject:**

- **Use a new needle.**
- **Prime to make sure the Pen is ready to dose.**
- **Make sure you got your full dose.**

**NEVER SHARE INSULIN PENS, CARTRIDGES, OR NEEDLES.**

## **PREPARING FOR INJECTION**

1. Wash your hands.
2. To avoid tissue damage, choose a site for each injection that is at least 1/2 inch from the previous injection site. The usual sites of injection are abdomen, thighs, and arms.
3. Follow the instructions in your Insulin Delivery Device User Manual to prepare for injection.
4. After injecting the dose, pull the needle out and apply gentle pressure over the injection site for several seconds. **Do not rub the area.**
5. After the injection, remove the needle from the Humulin N Pen. **Do not reuse needles.**
6. Place the used needle in a puncture-resistant disposable container and properly dispose of the puncture-resistant container as directed by your Health Care Professional.

## **DOSAGE**

Your doctor has told you which insulin to use, how much, and when and how often to inject it. Because each patient's diabetes is different, this schedule has been individualized for you.

Your usual dose of Humulin N may be affected by changes in your diet, activity, or work schedule. Carefully follow your doctor's instructions to allow for these changes. Other things that may affect your Humulin N dose are:

### **Illness**

Illness, especially with nausea and vomiting, may cause your insulin requirements to change. Even if you are not eating, you will still require insulin. You and your doctor should establish a sick day plan for you to use in case of illness. When you are sick, test your blood glucose frequently. If instructed by your doctor, test your ketones and report the results to your doctor.

## **Pregnancy**

Good control of diabetes is especially important for you and your unborn baby. Pregnancy may make managing your diabetes more difficult. If you are planning to have a baby, are pregnant, or are nursing a baby, talk to your doctor.

## **Medication**

Insulin requirements may be increased if you are taking other drugs with blood-glucose-raising activity, such as oral contraceptives, corticosteroids, or thyroid replacement therapy. Insulin requirements may be reduced in the presence of drugs that lower blood glucose or affect how your body responds to insulin, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, alcohol, certain antidepressants and some kidney and blood pressure medicines. Your Health Care Professional may be aware of other medications that may affect your diabetes control. Therefore, always discuss any medications you are taking with your doctor.

## **Exercise**

Exercise may lower your body's need for insulin during and for some time after the physical activity. Exercise may also speed up the effect of an insulin dose, especially if the exercise involves the area of injection site (for example, the leg should not be used for injection just prior to running). Discuss with your doctor how you should adjust your insulin regimen to accommodate exercise.

## **Travel**

When traveling across more than 2 time zones, you should talk to your doctor concerning adjustments in your insulin schedule.

# **COMMON PROBLEMS OF DIABETES**

## **Hypoglycemia (Low Blood Sugar)**

Hypoglycemia (too little glucose in the blood) is one of the most frequent adverse events experienced by insulin users. It can be brought about by:

1. **Missing or delaying meals.**
2. Taking too much insulin.
3. Exercising or working more than usual.
4. An infection or illness associated with diarrhea or vomiting.
5. A change in the body's need for insulin.
6. Diseases of the adrenal, pituitary, or thyroid gland, or progression of kidney or liver disease.
7. Interactions with certain drugs, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, certain antidepressants and some kidney and blood pressure medicines.
8. Consumption of alcoholic beverages.

Symptoms of mild to moderate hypoglycemia may occur suddenly and can include:

- |  |                       |
|--|-----------------------|
| • sweating                                     | • drowsiness          |
| • dizziness                                    | • sleep disturbances  |
| • palpitation                                  | • anxiety             |
| • tremor                                       | • blurred vision      |
| • hunger                                       | • slurred speech      |
| • restlessness                                 | • depressed mood      |
| • tingling in the hands, feet, lips, or tongue | • irritability        |
| • lightheadedness                              | • abnormal behavior   |
| • inability to concentrate                     | • unsteady movement   |
| • headache                                     | • personality changes |

Signs of severe hypoglycemia can include:

- |                   |            |
|-------------------|------------|
| • disorientation  | • seizures |
| • unconsciousness | • death    |

Therefore, it is important that assistance be obtained immediately.

Early warning symptoms of hypoglycemia may be different or less pronounced under certain conditions, such as long duration of diabetes, diabetic nerve disease, use of medications such as beta-blockers, changing insulin preparations, or intensified control (3 or more insulin injections per day) of diabetes.

**A few patients who have experienced hypoglycemic reactions after transfer from animal-source insulin to human insulin have reported that the early warning symptoms of hypoglycemia were less pronounced or different from those experienced with their previous insulin.**

Without recognition of early warning symptoms, you may not be able to take steps to avoid more serious hypoglycemia. Be alert for all of the various types of symptoms that may indicate hypoglycemia. Patients who experience hypoglycemia without early warning symptoms should monitor their blood glucose frequently, especially prior to activities such as driving. If the blood glucose is below your normal fasting glucose, you should consider eating or drinking sugar-containing foods to treat your hypoglycemia.

Mild to moderate hypoglycemia may be treated by eating foods or drinks that contain sugar. Patients should always carry a quick source of sugar, such as hard candy or glucose tablets. More severe hypoglycemia may require the assistance of another person. Patients who are unable to take sugar orally or who are unconscious require an injection of glucagon or should be treated with intravenous administration of glucose at a medical facility.

You should learn to recognize your own symptoms of hypoglycemia. If you are uncertain about these symptoms, you should monitor your blood glucose frequently to help you learn to recognize the symptoms that you experience with hypoglycemia.

If you have frequent episodes of hypoglycemia or experience difficulty in recognizing the symptoms, you should talk to your doctor to discuss possible changes in therapy, meal plans, and/or exercise programs to help you avoid hypoglycemia.

### **Hyperglycemia (High Blood Sugar) and Diabetic Ketoacidosis (DKA)**

Hyperglycemia (too much glucose in the blood) may develop if your body has too little insulin. Hyperglycemia can be brought about by any of the following:

1. Omitting your insulin or taking less than your doctor has prescribed.
2. Eating significantly more than your meal plan suggests.
3. Developing a fever, infection, or other significant stressful situation.

In patients with type 1 or insulin-dependent diabetes, prolonged hyperglycemia can result in DKA (a life-threatening emergency). The first symptoms of DKA usually come on gradually, over a period of hours or days, and include a drowsy feeling, flushed face, thirst, loss of appetite, and fruity odor on the breath. With DKA, blood and urine tests show large amounts of glucose and ketones. Heavy breathing and a rapid pulse are more severe symptoms. If uncorrected, prolonged hyperglycemia or DKA can lead to nausea, vomiting, stomach pain, dehydration, loss of consciousness, or death. Therefore, it is important that you obtain medical assistance immediately.

### **Lipodystrophy**

Rarely, administration of insulin subcutaneously can result in lipoatrophy (seen as an apparent depression of the skin) or lipohypertrophy (seen as a raised area of the skin). If you notice either of these conditions, talk to your doctor. A change in your injection technique may help alleviate the problem.

### **Allergy**

**Local Allergy** — Patients occasionally experience redness, swelling, and itching at the site of injection. This condition, called local allergy, usually clears up in a few days to a few weeks. In some instances, this condition may be related to factors other than insulin, such as irritants in the skin cleansing agent or poor injection technique. If you have local reactions, talk to your doctor.

*Systemic Allergy* — Less common, but potentially more serious, is generalized allergy to insulin, which may cause rash over the whole body, shortness of breath, wheezing, reduction in blood pressure, fast pulse, or sweating. Severe cases of generalized allergy may be life threatening. If you think you are having a generalized allergic reaction to insulin, call your doctor immediately.

#### **ADDITIONAL INFORMATION**

Information about diabetes may be obtained from your diabetes educator.

Additional information about diabetes and Humulin can be obtained by calling The Lilly Answers Center at 1-800-LillyRx (1-800-545-5979) or by visiting [www.LillyDiabetes.com](http://www.LillyDiabetes.com).

Patient Information issued/revised Month dd, yyyy

#### **Pens manufactured by**

**Eli Lilly and Company, Indianapolis, IN 46285, USA or  
Lilly France, F-67640 Fegersheim, France**

**for Eli Lilly and Company, Indianapolis, IN 46285, USA**

A1.0 NL 3682 AMP

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A1.0 NL 5721 AMP  
A3.0 NL 3770 AMP

## **INFORMATION FOR THE PATIENT**

**10 mL Vial (1000 Units per vial)**

# **HUMULIN<sup>®</sup> 70/30 70% HUMAN INSULIN ISOPHANE SUSPENSION AND 30% HUMAN INSULIN INJECTION (rDNA ORIGIN) 100 UNITS PER ML (U-100)**

### **WARNINGS**

**THIS LILLY HUMAN INSULIN PRODUCT DIFFERS FROM ANIMAL-SOURCE INSULINS BECAUSE IT IS STRUCTURALLY IDENTICAL TO THE INSULIN PRODUCED BY YOUR BODY'S PANCREAS AND BECAUSE OF ITS UNIQUE MANUFACTURING PROCESS.**

**ANY CHANGE OF INSULIN SHOULD BE MADE CAUTIOUSLY AND ONLY UNDER MEDICAL SUPERVISION. CHANGES IN STRENGTH, MANUFACTURER, TYPE (E.G., REGULAR, NPH, ANALOG), SPECIES, OR METHOD OF MANUFACTURE MAY RESULT IN THE NEED FOR A CHANGE IN DOSAGE.**

**SOME PATIENTS TAKING HUMULIN<sup>®</sup> (HUMAN INSULIN, rDNA ORIGIN) MAY REQUIRE A CHANGE IN DOSAGE FROM THAT USED WITH OTHER INSULINS. IF AN ADJUSTMENT IS NEEDED, IT MAY OCCUR WITH THE FIRST DOSE OR DURING THE FIRST SEVERAL WEEKS OR MONTHS.**

### **DIABETES**

Insulin is a hormone produced by the pancreas, a large gland that lies near the stomach. This hormone is necessary for the body's correct use of food, especially sugar. Diabetes occurs when the pancreas does not make enough insulin to meet your body's needs.

To control your diabetes, your doctor has prescribed injections of insulin products to keep your blood glucose at a near-normal level. You have been instructed to test your blood and/or your urine regularly for glucose. Studies have shown that some chronic complications of diabetes such as eye disease, kidney disease, and nerve disease can be significantly reduced if the blood sugar is maintained as close to normal as possible. The American Diabetes Association recommends that if your pre-meal glucose levels are consistently above 130 mg/dL or your hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) is more than 7%, you should talk to your doctor. A change in your diabetes therapy may be needed. If your blood tests consistently show below-normal glucose levels, you should also let your doctor know. Proper control of your diabetes requires close and constant cooperation with your doctor. Despite diabetes, you can lead an active and healthy life if you eat a balanced diet, exercise regularly, and take your insulin injections as prescribed by your doctor.

Always keep an extra supply of insulin as well as a spare syringe and needle on hand. Always wear diabetic identification so that appropriate treatment can be given if complications occur away from home.



## 70/30 HUMAN INSULIN

### Description

Humulin is synthesized in a special non-disease-producing laboratory strain of *Escherichia coli* bacteria that has been genetically altered to produce human insulin. Humulin 70/30 is a mixture of 70% Human Insulin Isophane Suspension and 30% Human Insulin Injection (rDNA origin). It is an intermediate-acting insulin combined with the more rapid onset of action of Regular human insulin. The duration of activity may last up to 24 hours following injection. The time course of action of any insulin may vary considerably in different individuals or at different times in the same individual. As with all insulin preparations, the duration of action of Humulin 70/30 is dependent on dose, site of injection, blood supply, temperature, and physical activity. Humulin 70/30 is a sterile suspension and is for subcutaneous injection only. It should not be used intravenously or intramuscularly. The concentration of Humulin 70/30 is 100 units/mL (U-100).

### Identification

Human insulin from Eli Lilly and Company has the trademark Humulin. Your doctor has prescribed the type of insulin that he/she believes is best for you.

### **DO NOT USE ANY OTHER INSULIN EXCEPT ON YOUR DOCTOR'S ADVICE AND DIRECTION.**

Always check the carton and the bottle label for the name and letter designation of the insulin you receive from your pharmacy to make sure it is the same as prescribed by your doctor.

Always check the appearance of your bottle of Humulin 70/30 before withdrawing each dose. Before each injection the Humulin 70/30 bottle must be carefully shaken or rotated several times to completely mix the insulin. Humulin 70/30 suspension should look uniformly cloudy or milky after mixing. If not, repeat the above steps until contents are mixed.

Do not use Humulin 70/30:

- if the insulin substance (the white material) remains at the bottom of the bottle after mixing or
- if there are clumps in the insulin after mixing, or
- if solid white particles stick to the bottom or wall of the bottle, giving a frosted appearance.

If you see anything unusual in the appearance of Humulin 70/30 suspension in your bottle or notice your insulin requirements changing, talk to your doctor.

### Storage

**Not in-use (unopened):** Humulin 70/30 bottles not in-use should be stored in a refrigerator, but not in the freezer.

**In-use (opened):** The Humulin 70/30 bottle you are currently using can be kept unrefrigerated as long as it is kept as cool as possible [below 86°F (30°C)] away from heat and light.

**Do not use Humulin 70/30 after the expiration date stamped on the label or if it has been frozen.**

## INSTRUCTIONS FOR INSULIN VIAL USE

### NEVER SHARE NEEDLES AND SYRINGES

### Correct Syringe Type

Doses of insulin are measured in **units**. U-100 insulin contains 100 units/mL (1 mL=1 cc). With Humulin 70/30, it is important to use a syringe that is marked for U-100 insulin preparations. Failure to use the proper syringe can lead to a mistake in dosage, causing serious problems for you, such as a blood glucose level that is too low or too high.

### Syringe Use

To help avoid contamination and possible infection, follow these instructions exactly.

Disposable syringes and needles should be used only once and then discarded by placing the used needle in a puncture-resistant disposable container. Properly dispose of the puncture-resistant container as directed by your Health Care Professional.

### Preparing the Dose

1. Wash your hands.
2. Carefully shake or rotate the bottle of insulin several times to completely mix the insulin.
3. Inspect the insulin. Humulin 70/30 suspension should look uniformly cloudy or milky. Do not use Humulin 70/30 if you notice anything unusual in its appearance.
4. If using a new Humulin 70/30 bottle, flip off the plastic protective cap, but **do not** remove the stopper. Wipe the top of the bottle with an alcohol swab.
5. Draw an amount of air into the syringe that is equal to the Humulin 70/30 dose. Put the needle through rubber top of the Humulin 70/30 bottle and inject the air into the bottle.
6. Turn the Humulin 70/30 bottle and syringe upside down. Hold the bottle and syringe firmly in one hand and shake gently.
7. Making sure the tip of the needle is in the Humulin 70/30 suspension, withdraw the correct dose of Humulin 70/30 into the syringe.
8. Before removing the needle from the Humulin 70/30 bottle, check the syringe for air bubbles. If bubbles are present, hold the syringe straight up and tap its side until the bubbles float to the top. Push the bubbles out with the plunger and then withdraw the correct dose.
9. Remove the needle from the bottle and lay the syringe down so that the needle does not touch anything.

### Injection Instructions

1. To avoid tissue damage, choose a site for each injection that is at least 1/2 inch from the previous injection site. The usual sites of injection are abdomen, thighs, and arms.
2. Cleanse the skin with alcohol where the injection is to be made.
3. With one hand, stabilize the skin by spreading it or pinching up a large area.
4. Insert the needle as instructed by your doctor.
5. Push the plunger in as far as it will go.
6. Pull the needle out and apply gentle pressure over the injection site for several seconds.  
**Do not rub the area.**
7. Place the used needle in a puncture-resistant disposable container and properly dispose of the puncture-resistant container as directed by your Health Care Professional.

### DOSAGE

Your doctor has told you which insulin to use, how much, and when and how often to inject it. Because each patient's diabetes is different, this schedule has been individualized for you.

Your usual dose of Humulin 70/30 may be affected by changes in your diet, activity, or work schedule. Carefully follow your doctor's instructions to allow for these changes. Other things that may affect your Humulin 70/30 dose are:

### Illness

Illness, especially with nausea and vomiting, may cause your insulin requirements to change. Even if you are not eating, you will still require insulin. You and your doctor should establish a sick day plan for you to use in case of illness. When you are sick, test your blood glucose frequently. If instructed by your doctor, test your ketones and report the results to your doctor.

### Pregnancy

Good control of diabetes is especially important for you and your unborn baby. Pregnancy may make managing your diabetes more difficult. If you are planning to have a baby, are pregnant, or are nursing a baby, talk to your doctor.

## Medication

Insulin requirements may be increased if you are taking other drugs with blood-glucose-raising activity, such as oral contraceptives, corticosteroids, or thyroid replacement therapy. Insulin requirements may be reduced in the presence of drugs that lower blood glucose or affect how your body responds to insulin, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, alcohol, certain antidepressants and some kidney and blood pressure medicines. Your Health Care Professional may be aware of other medications that may affect your diabetes control. Therefore, always discuss any medications you are taking with your doctor.

## Exercise

Exercise may lower your body's need for insulin during and for some time after the physical activity. Exercise may also speed up the effect of an insulin dose, especially if the exercise involves the area of injection site (for example, the leg should not be used for injection just prior to running). Discuss with your doctor how you should adjust your insulin regimen to accommodate exercise.

## Travel

When traveling across more than 2 time zones, you should talk to your doctor concerning adjustments in your insulin schedule.

## COMMON PROBLEMS OF DIABETES

### Hypoglycemia (Low Blood Sugar)

Hypoglycemia (too little glucose in the blood) is one of the most frequent adverse events experienced by insulin users. It can be brought about by:

1. **Missing or delaying meals.**
2. Taking too much insulin.
3. Exercising or working more than usual.
4. An infection or illness associated with diarrhea or vomiting.
5. A change in the body's need for insulin.
6. Diseases of the adrenal, pituitary, or thyroid gland, or progression of kidney or liver disease.
7. Interactions with certain drugs, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, certain antidepressants and some kidney and blood pressure medicines.
8. Consumption of alcoholic beverages.

Symptoms of mild to moderate hypoglycemia may occur suddenly and can include:

- |  |                       |
|--|-----------------------|
| • sweating                                     | • drowsiness          |
| • dizziness                                    | • sleep disturbances  |
| • palpitation                                  | • anxiety             |
| • tremor                                       | • blurred vision      |
| • hunger                                       | • slurred speech      |
| • restlessness                                 | • depressed mood      |
| • tingling in the hands, feet, lips, or tongue | • irritability        |
| • lightheadedness                              | • abnormal behavior   |
| • inability to concentrate                     | • unsteady movement   |
| • headache                                     | • personality changes |

Signs of severe hypoglycemia can include:

- |                   |            |
|-------------------|------------|
| • disorientation  | • seizures |
| • unconsciousness | • death    |

Therefore, it is important that assistance be obtained immediately.

Early warning symptoms of hypoglycemia may be different or less pronounced under certain conditions, such as long duration of diabetes, diabetic nerve disease, use of medications such as beta-blockers, changing insulin preparations, or intensified control (3 or more insulin injections per day) of diabetes.

**A few patients who have experienced hypoglycemic reactions after transfer from animal-source insulin to human insulin have reported that the early warning symptoms of hypoglycemia were less pronounced or different from those experienced with their previous insulin.**

Without recognition of early warning symptoms, you may not be able to take steps to avoid more serious hypoglycemia. Be alert for all of the various types of symptoms that may indicate hypoglycemia. Patients who experience hypoglycemia without early warning symptoms should monitor their blood glucose frequently, especially prior to activities such as driving. If the blood glucose is below your normal fasting glucose, you should consider eating or drinking sugar-containing foods to treat your hypoglycemia.

Mild to moderate hypoglycemia may be treated by eating foods or drinks that contain sugar. Patients should always carry a quick source of sugar, such as hard candy or glucose tablets. More severe hypoglycemia may require the assistance of another person. Patients who are unable to take sugar orally or who are unconscious require an injection of glucagon or should be treated with intravenous administration of glucose at a medical facility.

You should learn to recognize your own symptoms of hypoglycemia. If you are uncertain about these symptoms, you should monitor your blood glucose frequently to help you learn to recognize the symptoms that you experience with hypoglycemia.

If you have frequent episodes of hypoglycemia or experience difficulty in recognizing the symptoms, you should talk to your doctor to discuss possible changes in therapy, meal plans, and/or exercise programs to help you avoid hypoglycemia.

### **Hyperglycemia (High Blood Sugar) and Diabetic Ketoacidosis (DKA)**

Hyperglycemia (too much glucose in the blood) may develop if your body has too little insulin. Hyperglycemia can be brought about by any of the following:

1. Omitting your insulin or taking less than your doctor has prescribed.
2. Eating significantly more than your meal plan suggests.
3. Developing a fever, infection, or other significant stressful situation.

In patients with type 1 or insulin-dependent diabetes, prolonged hyperglycemia can result in DKA (a life-threatening emergency). The first symptoms of DKA usually come on gradually, over a period of hours or days, and include a drowsy feeling, flushed face, thirst, loss of appetite, and fruity odor on the breath. With DKA, blood and urine tests show large amounts of glucose and ketones. Heavy breathing and a rapid pulse are more severe symptoms. If uncorrected, prolonged hyperglycemia or DKA can lead to nausea, vomiting, stomach pain, dehydration, loss of consciousness, or death. Therefore, it is important that you obtain medical assistance immediately.

### **Lipodystrophy**

Rarely, administration of insulin subcutaneously can result in lipoatrophy (seen as an apparent depression of the skin) or lipohypertrophy (seen as a raised area of the skin). If you notice either of these conditions, talk to your doctor. A change in your injection technique may help alleviate the problem.

### **Allergy**

*Local Allergy* — Patients occasionally experience redness, swelling, and itching at the site of injection. This condition, called local allergy, usually clears up in a few days to a few weeks. In some instances, this condition may be related to factors other than insulin, such as irritants in the skin cleansing agent or poor injection technique. If you have local reactions, talk to your doctor.

*Systemic Allergy* — Less common, but potentially more serious, is generalized allergy to insulin, which may cause rash over the whole body, shortness of breath, wheezing, reduction in blood pressure, fast pulse, or sweating. Severe cases of generalized allergy may be life threatening. If you think you are having a generalized allergic reaction to insulin, call your doctor immediately.

#### **ADDITIONAL INFORMATION**

Information about diabetes may be obtained from your diabetes educator.

Additional information about diabetes and Humulin can be obtained by calling The Lilly Answers Center at 1-800-LillyRx (1-800-545-5979) or by visiting [www.LillyDiabetes.com](http://www.LillyDiabetes.com).

Patient Information issued/revised Month dd, yyyy

**Vials manufactured by**  
**Eli Lilly and Company, Indianapolis, IN 46285, USA or**  
**Lilly France, F-67640 Fegersheim, France**

**for Eli Lilly and Company, Indianapolis, IN 46285, USA**

A1.0 NL 5721 AMP  
A3.0 NL 3770 AMP

PRINTED IN USA

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A1.0 NL 3672 AMP  
A2.0 PA 9145 FSAMP

**INFORMATION FOR THE PATIENT  
3 ML DISPOSABLE INSULIN DELIVERY DEVICE**

**HUMULIN<sup>®</sup> 70/30 Pen  
70% HUMAN INSULIN  
ISOPHANE SUSPENSION  
AND  
30% HUMAN INSULIN INJECTION  
(rDNA ORIGIN)  
100 UNITS PER ML (U-100)**

**WARNINGS**

**THIS LILLY HUMAN INSULIN PRODUCT DIFFERS FROM ANIMAL-SOURCE INSULINS BECAUSE IT IS STRUCTURALLY IDENTICAL TO THE INSULIN PRODUCED BY YOUR BODY'S PANCREAS AND BECAUSE OF ITS UNIQUE MANUFACTURING PROCESS.**

**ANY CHANGE OF INSULIN SHOULD BE MADE CAUTIOUSLY AND ONLY UNDER MEDICAL SUPERVISION. CHANGES IN STRENGTH, MANUFACTURER, TYPE (E.G., REGULAR, NPH, ANALOG), SPECIES, OR METHOD OF MANUFACTURE MAY RESULT IN THE NEED FOR A CHANGE IN DOSAGE.**

**SOME PATIENTS TAKING HUMULIN<sup>®</sup> (HUMAN INSULIN, rDNA ORIGIN) MAY REQUIRE A CHANGE IN DOSAGE FROM THAT USED WITH OTHER INSULINS. IF AN ADJUSTMENT IS NEEDED, IT MAY OCCUR WITH THE FIRST DOSE OR DURING THE FIRST SEVERAL WEEKS OR MONTHS.**

**TO OBTAIN AN ACCURATE DOSE, CAREFULLY READ AND FOLLOW THE INSULIN DELIVERY DEVICE USER MANUAL AND THIS "INFORMATION FOR THE PATIENT" INSERT BEFORE USING THIS PRODUCT.**

**BEFORE EACH INJECTION, YOU SHOULD PRIME THE PEN, A NECESSARY STEP TO MAKE SURE THE PEN IS READY TO DOSE. PRIMING THE PEN IS IMPORTANT TO CONFIRM THAT INSULIN COMES OUT WHEN YOU PUSH THE INJECTION BUTTON AND TO REMOVE AIR THAT MAY COLLECT IN THE INSULIN CARTRIDGE DURING NORMAL USE. IF YOU DO NOT PRIME, YOU MAY RECEIVE TOO MUCH OR TOO LITTLE INSULIN (*see also* INSTRUCTIONS FOR INSULIN PEN USE section).**

**DIABETES**

Insulin is a hormone produced by the pancreas, a large gland that lies near the stomach. This hormone is necessary for the body's correct use of food, especially sugar. Diabetes occurs when the pancreas does not make enough insulin to meet your body's needs.

To control your diabetes, your doctor has prescribed injections of insulin products to keep your blood glucose at a near-normal level. You have been instructed to test your blood and/or your urine regularly for glucose. Studies have shown that some chronic complications of diabetes such as eye disease, kidney disease, and nerve disease can be significantly reduced if the blood sugar is maintained as close to normal as possible. The American Diabetes Association



recommends that if your pre-meal glucose levels are consistently above 130 mg/dL or your hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) is more than 7%, you should talk to your doctor. A change in your diabetes therapy may be needed. If your blood tests consistently show below-normal glucose levels, you should also let your doctor know. Proper control of your diabetes requires close and constant cooperation with your doctor. Despite diabetes, you can lead an active and healthy life if you eat a balanced diet, exercise regularly, and take your insulin injections as prescribed by your doctor.

Always keep an extra supply of insulin as well as a spare syringe and needle on hand. Always wear diabetic identification so that appropriate treatment can be given if complications occur away from home.

## 70/30 HUMAN INSULIN

### Description

Humulin is synthesized in a special non-disease-producing laboratory strain of *Escherichia coli* bacteria that has been genetically altered to produce human insulin. Humulin 70/30 is a mixture of 70% Human Insulin Isophane Suspension and 30% Human Insulin Injection, (rDNA origin). It is an intermediate-acting insulin combined with the more rapid onset of action of Regular human insulin. The duration of activity may last up to 24 hours following injection. The time course of action of any insulin may vary considerably in different individuals or at different times in the same individual. As with all insulin preparations, the duration of action of Humulin 70/30 is dependent on dose, site of injection, blood supply, temperature, and physical activity. Humulin 70/30 is a sterile suspension and is for subcutaneous injection only. It should not be used intravenously or intramuscularly. The concentration of Humulin 70/30 is 100 units/mL (U-100).

### Identification

Human insulin from Eli Lilly and Company has the trademark Humulin.

Your doctor has prescribed the type of insulin that he/she believes is best for you.

**DO NOT USE ANY OTHER INSULIN EXCEPT ON YOUR DOCTOR'S ADVICE AND DIRECTION.**

**The Humulin 70/30 Pen is available in boxes of 5 disposable insulin delivery devices ("insulin Pens"). The Humulin 70/30 Pen is not designed to allow any other insulin to be mixed in its cartridge, or for the cartridge to be removed.**

Always check the carton and the Pen label for the name and letter designation of the insulin you receive from your pharmacy to make sure it is the same as prescribed by your doctor.

Always check the appearance of Humulin 70/30 suspension in your insulin Pen before using. A cartridge of Humulin 70/30 contains a small glass bead to assist in mixing. Roll the Pen between the palms 10 times (*see* Figure 1). Holding the Pen by one end, invert it 180° slowly 10 times to allow the small glass bead to travel the full length with each inversion (*see* Figure 2).

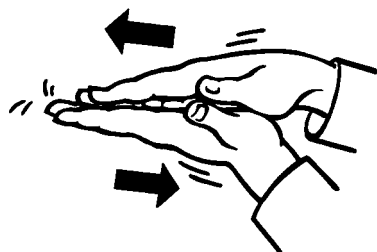


Figure 1.

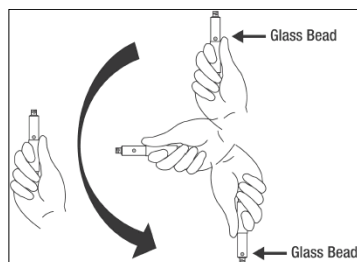


Figure 2.

Humulin 70/30 suspension should look uniformly cloudy or milky after mixing. If not, repeat the above steps until contents are mixed. Pens containing Humulin 70/30 suspension should be examined frequently.

Do not use Humulin 70/30:

- if the insulin substance (the white material) remains visibly separated from the liquid after mixing or
- if there are clumps in the insulin after mixing, or
- if solid white particles stick to the walls of the cartridge, giving a frosted appearance.

If you see anything unusual in the appearance of the Humulin 70/30 suspension in your Pen or notice your insulin requirements changing, talk to your doctor.

Never attempt to remove the cartridge from the Humulin 70/30 Pen. Inspect the cartridge through the clear cartridge holder.

### **Storage**

**Not in-use (unopened):** Humulin 70/30 Pens not in-use should be stored in a refrigerator, but not in the freezer.

**In-use (opened):** Humulin 70/30 Pens in-use should **NOT** be refrigerated but should be kept at room temperature [below 86°F (30°C)] away from direct heat and light. The Humulin 70/30 Pen you are currently using must be discarded **10 days** after the first use, even if it still contains Humulin 70/30.

**Do not use Humulin 70/30 after the expiration date stamped on the label or if it has been frozen.**

### **INSTRUCTIONS FOR INSULIN PEN USE**

**It is important to read, understand, and follow the instructions in the Insulin Delivery Device User Manual before using. Failure to follow instructions may result in getting too much or too little insulin. The needle must be changed and the Pen must be primed before each injection to make sure the Pen is ready to dose. Performing these steps before each injection is important to confirm that insulin comes out when you push the injection button, and to remove air that may collect in the insulin cartridge during normal use.**

**Every time you inject:**

- Use a new needle.
- Prime to make sure the Pen is ready to dose.
- Make sure you got your full dose.

**NEVER SHARE INSULIN PENS, CARTRIDGES, OR NEEDLES.**

### **PREPARING FOR INJECTION**

1. Wash your hands.
2. To avoid tissue damage, choose a site for each injection that is at least 1/2 inch from the previous injection site. The usual sites of injection are abdomen, thighs, and arms.
3. Follow the instructions in your Insulin Delivery Device User Manual to prepare for injection.
4. After injecting the dose, pull the needle out and apply gentle pressure over the injection site for several seconds. **Do not rub the area.**
5. After the injection, remove the needle from the Humulin 70/30 Pen. **Do not reuse needles.**
6. Place the used needle in a puncture-resistant disposable container and properly dispose of the puncture-resistant container as directed by your Health Care Professional.

### **DOSAGE**

Your doctor has told you which insulin to use, how much, and when and how often to inject it. Because each patient's diabetes is different, this schedule has been individualized for you.

Your usual dose of Humulin 70/30 may be affected by changes in your diet, activity, or work schedule. Carefully follow your doctor's instructions to allow for these changes. Other things that may affect your Humulin 70/30 dose are:

## **Illness**

Illness, especially with nausea and vomiting, may cause your insulin requirements to change. Even if you are not eating, you will still require insulin. You and your doctor should establish a sick day plan for you to use in case of illness. When you are sick, test your blood glucose frequently. If instructed by your doctor, test your ketones and report the results to your doctor.

## **Pregnancy**

Good control of diabetes is especially important for you and your unborn baby. Pregnancy may make managing your diabetes more difficult. If you are planning to have a baby, are pregnant, or are nursing a baby, talk to your doctor.

## **Medication**

Insulin requirements may be increased if you are taking other drugs with blood-glucose-raising activity, such as oral contraceptives, corticosteroids, or thyroid replacement therapy. Insulin requirements may be reduced in the presence of drugs that lower blood glucose or affect how your body responds to insulin, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, alcohol, certain antidepressants and some kidney and blood pressure medicines. Your Health Care Professional may be aware of other medications that may affect your diabetes control. Therefore, always discuss any medications you are taking with your doctor.

## **Exercise**

Exercise may lower your body's need for insulin during and for some time after the physical activity. Exercise may also speed up the effect of an insulin dose, especially if the exercise involves the area of injection site (for example, the leg should not be used for injection just prior to running). Discuss with your doctor how you should adjust your insulin regimen to accommodate exercise.

## **Travel**

When traveling across more than 2 time zones, you should talk to your doctor concerning adjustments in your insulin schedule.

## **COMMON PROBLEMS OF DIABETES**

### **Hypoglycemia (Low Blood Sugar)**

Hypoglycemia (too little glucose in the blood) is one of the most frequent adverse events experienced by insulin users. It can be brought about by:

1. **Missing or delaying meals.**
2. Taking too much insulin.
3. Exercising or working more than usual.
4. An infection or illness associated with diarrhea or vomiting.
5. A change in the body's need for insulin.
6. Diseases of the adrenal, pituitary, or thyroid gland, or progression of kidney or liver disease.
7. Interactions with certain drugs, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, certain antidepressants and some kidney and blood pressure medicines.
8. Consumption of alcoholic beverages.

Symptoms of mild to moderate hypoglycemia may occur suddenly and can include:

- sweating
- dizziness
- palpitation
- tremor
- hunger
- restlessness
- tingling in the hands, feet, lips, or tongue
- lightheadedness
- drowsiness
- sleep disturbances
- anxiety
- blurred vision
- slurred speech
- depressed mood
- irritability
- abnormal behavior

- inability to concentrate
- headache
- unsteady movement
- personality changes

Signs of severe hypoglycemia can include:

- disorientation
- unconsciousness
- seizures
- death

Therefore, it is important that assistance be obtained immediately.

Early warning symptoms of hypoglycemia may be different or less pronounced under certain conditions, such as long duration of diabetes, diabetic nerve disease, use of medications such as beta-blockers, changing insulin preparations, or intensified control (3 or more insulin injections per day) of diabetes.

**A few patients who have experienced hypoglycemic reactions after transfer from animal-source insulin to human insulin have reported that the early warning symptoms of hypoglycemia were less pronounced or different from those experienced with their previous insulin.**

Without recognition of early warning symptoms, you may not be able to take steps to avoid more serious hypoglycemia. Be alert for all of the various types of symptoms that may indicate hypoglycemia. Patients who experience hypoglycemia without early warning symptoms should monitor their blood glucose frequently, especially prior to activities such as driving. If the blood glucose is below your normal fasting glucose, you should consider eating or drinking sugar-containing foods to treat your hypoglycemia.

Mild to moderate hypoglycemia may be treated by eating foods or drinks that contain sugar. Patients should always carry a quick source of sugar, such as hard candy or glucose tablets. More severe hypoglycemia may require the assistance of another person. Patients who are unable to take sugar orally or who are unconscious require an injection of glucagon or should be treated with intravenous administration of glucose at a medical facility.

You should learn to recognize your own symptoms of hypoglycemia. If you are uncertain about these symptoms, you should monitor your blood glucose frequently to help you learn to recognize the symptoms that you experience with hypoglycemia.

If you have frequent episodes of hypoglycemia or experience difficulty in recognizing the symptoms, you should talk to your doctor to discuss possible changes in therapy, meal plans, and/or exercise programs to help you avoid hypoglycemia.

### **Hyperglycemia (High Blood Sugar) and Diabetic Ketoacidosis (DKA)**

Hyperglycemia (too much glucose in the blood) may develop if your body has too little insulin. Hyperglycemia can be brought about by any of the following:

1. Omitting your insulin or taking less than your doctor has prescribed.
2. Eating significantly more than your meal plan suggests.
3. Developing a fever, infection, or other significant stressful situation.

In patients with type 1 or insulin-dependent diabetes, prolonged hyperglycemia can result in DKA (a life-threatening emergency). The first symptoms of DKA usually come on gradually, over a period of hours or days, and include a drowsy feeling, flushed face, thirst, loss of appetite, and fruity odor on the breath. With DKA, blood and urine tests show large amounts of glucose and ketones. Heavy breathing and a rapid pulse are more severe symptoms. If uncorrected, prolonged hyperglycemia or DKA can lead to nausea, vomiting, stomach pain, dehydration, loss of consciousness, or death. Therefore, it is important that you obtain medical assistance immediately.

### **Lipodystrophy**

Rarely, administration of insulin subcutaneously can result in lipodystrophy (seen as an apparent depression of the skin) or lipohypertrophy (seen as a raised area of the skin). If you notice either of these conditions, talk to your doctor. A change in your injection technique may help alleviate the problem.

## Allergy

*Local Allergy* — Patients occasionally experience redness, swelling, and itching at the site of injection. This condition, called local allergy, usually clears up in a few days to a few weeks. In some instances, this condition may be related to factors other than insulin, such as irritants in the skin cleansing agent or poor injection technique. If you have local reactions, talk to your doctor.

*Systemic Allergy* — Less common, but potentially more serious, is generalized allergy to insulin, which may cause rash over the whole body, shortness of breath, wheezing, reduction in blood pressure, fast pulse, or sweating. Severe cases of generalized allergy may be life threatening. If you think you are having a generalized allergic reaction to insulin, call your doctor immediately.

## ADDITIONAL INFORMATION

Information about diabetes may be obtained from your diabetes educator.

Additional information about diabetes and Humulin can be obtained by calling The Lilly Answers Center at 1-800-LillyRx (1-800-545-5979) or by visiting [www.LillyDiabetes.com](http://www.LillyDiabetes.com).

Patient Information issued/revised Month dd, yyyy

### Pens manufactured by

**Eli Lilly and Company, Indianapolis, IN 46285, USA or  
Lilly France, F-67640 Fegersheim, France**

**for Eli Lilly and Company, Indianapolis, IN 46285, USA**

A1.0 NL 3672 AMP

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A1.0 NL 5701 AMP  
A3.0 NL 4590 AMP

**INFORMATION FOR THE PATIENT**  
**10 mL Vial (1000 Units per vial)**

**HUMULIN<sup>®</sup> 50/50**  
**50% HUMAN INSULIN**  
**ISOPHANE SUSPENSION**  
**AND**  
**50% HUMAN INSULIN INJECTION**  
**(rDNA ORIGIN)**  
**100 UNITS PER ML (U-100)**

**WARNINGS**

**THIS LILLY HUMAN INSULIN PRODUCT DIFFERS FROM ANIMAL-SOURCE INSULINS BECAUSE IT IS STRUCTURALLY IDENTICAL TO THE INSULIN PRODUCED BY YOUR BODY'S PANCREAS AND BECAUSE OF ITS UNIQUE MANUFACTURING PROCESS.**

**ANY CHANGE OF INSULIN SHOULD BE MADE CAUTIOUSLY AND ONLY UNDER MEDICAL SUPERVISION. CHANGES IN STRENGTH, MANUFACTURER, TYPE (E.G., REGULAR, NPH, ANALOG), SPECIES, OR METHOD OF MANUFACTURE MAY RESULT IN THE NEED FOR A CHANGE IN DOSAGE.**

**SOME PATIENTS TAKING HUMULIN<sup>®</sup> (HUMAN INSULIN, rDNA ORIGIN) MAY REQUIRE A CHANGE IN DOSAGE FROM THAT USED WITH OTHER INSULINS. IF AN ADJUSTMENT IS NEEDED, IT MAY OCCUR WITH THE FIRST DOSE OR DURING THE FIRST SEVERAL WEEKS OR MONTHS.**

**DIABETES**

Insulin is a hormone produced by the pancreas, a large gland that lies near the stomach. This hormone is necessary for the body's correct use of food, especially sugar. Diabetes occurs when the pancreas does not make enough insulin to meet your body's needs.

To control your diabetes, your doctor has prescribed injections of insulin products to keep your blood glucose at a near-normal level. You have been instructed to test your blood and/or your urine regularly for glucose. Studies have shown that some chronic complications of diabetes such as eye disease, kidney disease, and nerve disease can be significantly reduced if the blood sugar is maintained as close to normal as possible. The American Diabetes Association recommends that if your pre-meal glucose levels are consistently above 130 mg/dL or your hemoglobin A<sub>1c</sub> (HbA<sub>1c</sub>) is more than 7%, you should talk to your doctor. A change in your diabetes therapy may be needed. If your blood tests consistently show below-normal glucose levels, you should also let your doctor know. Proper control of your diabetes requires close and constant cooperation with your doctor. Despite diabetes, you can lead an active and healthy life if you eat a balanced diet, exercise regularly, and take your insulin injections as prescribed by your doctor.

Always keep an extra supply of insulin as well as a spare syringe and needle on hand. Always wear diabetic identification so that appropriate treatment can be given if complications occur away from home.



## 50/50 HUMAN INSULIN

### Description

Humulin is synthesized in a special non-disease-producing laboratory strain of *Escherichia coli* bacteria that has been genetically altered to produce human insulin. Humulin 50/50 is a mixture of 50% Human Insulin Isophane Suspension and 50% Human Insulin Injection (rDNA origin). It is an intermediate-acting insulin combined with the more rapid onset of action of Regular human insulin. The duration of activity may last up to 24 hours following injection. The time course of action of any insulin may vary considerably in different individuals or at different times in the same individual. As with all insulin preparations, the duration of action of Humulin 50/50 is dependent on dose, site of injection, blood supply, temperature, and physical activity. Humulin 50/50 is a sterile suspension and is for subcutaneous injection only. It should not be used intravenously or intramuscularly. The concentration of Humulin 50/50 is 100 units/mL (U-100).

### Identification

Human insulin from Eli Lilly and Company has the trademark Humulin. Your doctor has prescribed the type of insulin that he/she believes is best for you.

### **DO NOT USE ANY OTHER INSULIN EXCEPT ON YOUR DOCTOR'S ADVICE AND DIRECTION.**

Always check the carton and the bottle label for the name and letter designation of the insulin you receive from your pharmacy to make sure it is the same as prescribed by your doctor.

Always check the appearance of your bottle of Humulin 50/50 before withdrawing each dose. Before each injection the Humulin 50/50 bottle must be carefully shaken or rotated several times to completely mix the insulin. Humulin 50/50 suspension should look uniformly cloudy or milky after mixing. If not, repeat the above steps until contents are mixed.

Do not use Humulin 50/50:

- if the insulin substance (the white material) remains at the bottom of the bottle after mixing or
- if there are clumps in the insulin after mixing, or
- if solid white particles stick to the bottom or wall of the bottle, giving a frosted appearance.

If you see anything unusual in the appearance of Humulin 50/50 suspension in your bottle or notice your insulin requirements changing, talk to your doctor.

### Storage

**Not in-use (unopened):** Humulin 50/50 bottles not in-use should be stored in a refrigerator, but not in the freezer.

**In-use (opened):** The Humulin 50/50 bottle you are currently using can be kept unrefrigerated as long as it is kept as cool as possible [below 86°F (30°C)] away from heat and light.

**Do not use Humulin 50/50 after the expiration date stamped on the label or if it has been frozen.**

## INSTRUCTIONS FOR INSULIN VIAL USE

### **NEVER SHARE NEEDLES AND SYRINGES.**

### Correct Syringe Type

Doses of insulin are measured in **units**. U-100 insulin contains 100 units/mL (1 mL=1 cc). With Humulin 50/50, it is important to use a syringe that is marked for U-100 insulin preparations. Failure to use the proper syringe can lead to a mistake in dosage, causing serious problems for you, such as a blood glucose level that is too low or too high.

### Syringe Use

To help avoid contamination and possible infection, follow these instructions exactly.

Disposable syringes and needles should be used only once and then discarded by placing the used needle in a puncture-resistant disposable container. Properly dispose of the puncture-resistant container as directed by your Health Care Professional.

## Preparing the Dose

1. Wash your hands.
2. Carefully shake or rotate the bottle of insulin several times to completely mix the insulin.
3. Inspect the insulin. Humulin 50/50 suspension should look uniformly cloudy or milky. Do not use Humulin 50/50 if you notice anything unusual in its appearance.
4. If using a new Humulin 50/50 bottle, flip off the plastic protective cap, but **do not** remove the stopper. Wipe the top of the bottle with an alcohol swab.
5. Draw an amount of air into the syringe that is equal to the Humulin 50/50 dose. Put the needle through rubber top of the Humulin 50/50 bottle and inject the air into the bottle.
6. Turn the Humulin 50/50 bottle and syringe upside down. Hold the bottle and syringe firmly in one hand and shake gently.
7. Making sure the tip of the needle is in the Humulin 50/50 suspension, withdraw the correct dose of Humulin 50/50 into the syringe.
8. Before removing the needle from the Humulin 50/50 bottle, check the syringe for air bubbles. If bubbles are present, hold the syringe straight up and tap its side until the bubbles float to the top. Push the bubbles out with the plunger and then withdraw the correct dose.
9. Remove the needle from the bottle and lay the syringe down so that the needle does not touch anything.

## Injection Instructions

1. To avoid tissue damage, choose a site for each injection that is at least 1/2 inch from the previous injection site. The usual sites of injection are abdomen, thighs, and arms.
2. Cleanse the skin with alcohol where the injection is to be made.
3. With one hand, stabilize the skin by spreading it or pinching up a large area.
4. Insert the needle as instructed by your doctor.
5. Push the plunger in as far as it will go.
6. Pull the needle out and apply gentle pressure over the injection site for several seconds.  
**Do not rub the area.**
7. Place the used needle in a puncture-resistant disposable container and properly dispose of the puncture-resistant container as directed by your Health Care Professional.

## DOSAGE

Your doctor has told you which insulin to use, how much, and when and how often to inject it. Because each patient's diabetes is different, this schedule has been individualized for you. Your usual dose of Humulin 50/50 may be affected by changes in your diet, activity, or work schedule. Carefully follow your doctor's instructions to allow for these changes. Other things that may affect your Humulin 50/50 dose are:

### Illness

Illness, especially with nausea and vomiting, may cause your insulin requirements to change. Even if you are not eating, you will still require insulin. You and your doctor should establish a sick day plan for you to use in case of illness. When you are sick, test your blood glucose frequently. If instructed by your doctor, test your ketones and report the results to your doctor.

### Pregnancy

Good control of diabetes is especially important for you and your unborn baby. Pregnancy may make managing your diabetes more difficult. If you are planning to have a baby, are pregnant, or are nursing a baby, talk to your doctor.

### Medication

Insulin requirements may be increased if you are taking other drugs with blood-glucose-raising activity, such as oral contraceptives, corticosteroids, or thyroid replacement therapy. Insulin requirements may be reduced in the presence of drugs that lower blood glucose or affect how your body responds to insulin, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, alcohol, certain antidepressants and some kidney and blood pressure medicines.

Your Healthcare Professional may be aware of other medications that may affect your diabetes control. Therefore, always discuss any medications you are taking with your doctor.

### **Exercise**

Exercise may lower your body's need for insulin during and for some time after the physical activity. Exercise may also speed up the effect of an insulin dose, especially if the exercise involves the area of injection site (for example, the leg should not be used for injection just prior to running). Discuss with your doctor how you should adjust your insulin regimen to accommodate exercise.

### **Travel**

When traveling across more than 2 time zones, you should talk to your doctor concerning adjustments in your insulin schedule.

## **COMMON PROBLEMS OF DIABETES**

### **Hypoglycemia (Low Blood Sugar)**

Hypoglycemia (too little glucose in the blood) is one of the most frequent adverse events experienced by insulin users. It can be brought about by:

1. **Missing or delaying meals.**
2. Taking too much insulin.
3. Exercising or working more than usual.
4. An infection or illness associated with diarrhea or vomiting.
5. A change in the body's need for insulin.
6. Diseases of the adrenal, pituitary, or thyroid gland, or progression of kidney or liver disease.
7. Interactions with certain drugs, such as oral antidiabetic agents, salicylates (for example, aspirin), sulfa antibiotics, certain antidepressants and some kidney and blood pressure medicines.
8. Consumption of alcoholic beverages.

Symptoms of mild to moderate hypoglycemia may occur suddenly and can include:

- |  |                       |
|--|-----------------------|
| • sweating                                     | • drowsiness          |
| • dizziness                                    | • sleep disturbances  |
| • palpitation                                  | • anxiety             |
| • tremor                                       | • blurred vision      |
| • hunger                                       | • slurred speech      |
| • restlessness                                 | • depressed mood      |
| • tingling in the hands, feet, lips, or tongue | • irritability        |
| • lightheadedness                              | • abnormal behavior   |
| • inability to concentrate                     | • unsteady movement   |
| • headache                                     | • personality changes |

Signs of severe hypoglycemia can include:

- |                   |            |
|-------------------|------------|
| • disorientation  | • seizures |
| • unconsciousness | • death    |

Therefore, it is important that assistance be obtained immediately.

Early warning symptoms of hypoglycemia may be different or less pronounced under certain conditions, such as long duration of diabetes, diabetic nerve disease, use of medications such as beta-blockers, changing insulin preparations, or intensified control (3 or more insulin injections per day) of diabetes.

**A few patients who have experienced hypoglycemic reactions after transfer from animal-source insulin to human insulin have reported that the early warning symptoms of hypoglycemia were less pronounced or different from those experienced with their previous insulin.**

Without recognition of early warning symptoms, you may not be able to take steps to avoid more serious hypoglycemia. Be alert for all of the various types of symptoms that may indicate hypoglycemia. Patients who experience hypoglycemia without early warning symptoms should monitor their blood glucose frequently, especially prior to activities such as driving. If the blood glucose is below your normal fasting glucose, you should consider eating or drinking sugar-containing foods to treat your hypoglycemia.

Mild to moderate hypoglycemia may be treated by eating foods or drinks that contain sugar. Patients should always carry a quick source of sugar, such as hard candy or glucose tablets. More severe hypoglycemia may require the assistance of another person. Patients who are unable to take sugar orally or who are unconscious require an injection of glucagon or should be treated with intravenous administration of glucose at a medical facility.

You should learn to recognize your own symptoms of hypoglycemia. If you are uncertain about these symptoms, you should monitor your blood glucose frequently to help you learn to recognize the symptoms that you experience with hypoglycemia.

If you have frequent episodes of hypoglycemia or experience difficulty in recognizing the symptoms, you should talk to your doctor to discuss possible changes in therapy, meal plans, and/or exercise programs to help you avoid hypoglycemia.

### **Hyperglycemia (High Blood Sugar) and Diabetic Ketoacidosis (DKA)**

Hyperglycemia (too much glucose in the blood) may develop if your body has too little insulin. Hyperglycemia can be brought about by any of the following:

1. Omitting your insulin or taking less than your doctor has prescribed.
2. Eating significantly more than your meal plan suggests.
3. Developing a fever, infection, or other significant stressful situation.

In patients with type 1 or insulin-dependent diabetes, prolonged hyperglycemia can result in DKA (a life-threatening emergency). The first symptoms of DKA usually come on gradually, over a period of hours or days, and include a drowsy feeling, flushed face, thirst, loss of appetite, and fruity odor on the breath. With DKA, blood and urine tests show large amounts of glucose and ketones. Heavy breathing and a rapid pulse are more severe symptoms. If uncorrected, prolonged hyperglycemia or DKA can lead to nausea, vomiting, stomach pain, dehydration, loss of consciousness, or death. Therefore, it is important that you obtain medical assistance immediately.

### **Lipodystrophy**

Rarely, administration of insulin subcutaneously can result in lipoatrophy (seen as an apparent depression of the skin) or lipohypertrophy (seen as a raised area of the skin). If you notice either of these conditions, talk to your doctor. A change in your injection technique may help alleviate the problem.

### **Allergy**

*Local Allergy* — Patients occasionally experience redness, swelling, and itching at the site of injection. This condition, called local allergy, usually clears up in a few days to a few weeks. In some instances, this condition may be related to factors other than insulin, such as irritants in the skin cleansing agent or poor injection technique. If you have local reactions, talk to your doctor.

*Systemic Allergy* — Less common, but potentially more serious, is generalized allergy to insulin, which may cause rash over the whole body, shortness of breath, wheezing, reduction in blood pressure, fast pulse, or sweating. Severe cases of generalized allergy may be life threatening. If you think you are having a generalized allergic reaction to insulin, call your doctor immediately.

## **ADDITIONAL INFORMATION**

Information about diabetes may be obtained from your diabetes educator.

Additional information about diabetes and Humulin can be obtained by calling The Lilly Answers Center at 1-800-LillyRx (1-800-545-5979) or by visiting [www.LillyDiabetes.com](http://www.LillyDiabetes.com).

249 Patient Information issued/revised Month dd, yyyy

250 **Vials manufactured by**  
251 **Eli Lilly and Company, Indianapolis, IN 46285, USA or**  
252 **Lilly France, F-67640 Fegersheim, France**

253  
254 **for Eli Lilly and Company, Indianapolis, IN 46285, USA**

255 A1.0 NL 5701 AMP PRINTED IN USA

256 A3.0 NL 4590 AMP

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