PURPOSE:
To obtain blood glucose results in the home using a blood glucose meter/glucometer.

CONSIDERATIONS:
1. Glucose monitor should be maintained according to manufacturer guidelines.
2. All meter results should be within 10-15% of a laboratory-measured result, according to the American Diabetes Association.
3. When training patients and/or caregivers in blood glucose monitoring, the following components should be incorporated:
   a. An assessment should be made by the nurse of the patient and/or caregiver's ability to properly use a glucose meter.
   b. The patient and/or caregiver should be trained by a qualified nurse or certified diabetes educator (CDE) who demonstrates proper procedures and techniques.
   c. The nurse/CDE should assist the patient and/or caregiver in making the appropriate choice from the available systems.
   d. The patient and/or caregiver should demonstrate proficiency and be allowed to practice until their technique is consistently accurate.
   e. The principles and importance of quality control should be taught to the patient and/or caregiver.
   f. The nurse/CDE training the patient and/or caregiver should provide immediate assessment and periodic reassessment of the patient and/or caregiver's skills in blood glucose monitoring.
   g. Teach patient and/or caregiver proper disposal of supplies.
   h. Teach patient and/or caregiver to check test strips for expiration date.
4. It is not advisable to apply blood taken via venipuncture to a blood glucose meter test strip, since most meters and strips are designed and calibrated for capillary blood only.

EQUIPMENT:
Blood glucose meter
Gloves
Automatic lancing device
Appropriate test strips
Alcohol swab
Puncture-proof container
Impervious trash bag

PROCEDURE:
1. Adhere to Standard Precautions.
2. Explain procedure and its purpose to patient and/or caregiver.
3. Assemble the equipment on a clean surface.
4. Follow manufacturer's instructions on use of the meter for blood glucose testing.
5. Obtain blood sample. (See Endocrine – Obtaining Blood Samples: Fingerstick.)
6. Discard soiled supplies in appropriate containers.
7. Follow agency guidelines for quality control requirements for blood glucose meters, if applicable.

AFTER CARE:
   a. Results of blood glucose monitoring.
   b. Presence of any signs or symptoms of hyper or hypoglycemia.
   c. Instructions given to patient/caregiver.
   d. Patient's/caregiver's ability to return demonstrate procedure.
2. Report to physician, if indicated.
PURPOSE:
To provide guidelines to minimize the risk of diabetic foot ulcers.

CONSIDERATIONS:
1. The number of patients diagnosed with diabetes is increasing annually.
2. The number of diabetics with complications, such as foot ulcers, is increasing.
3. Annual foot screenings are recommended to identify diabetic patients at risk for foot ulcers, which can lead to amputation.

EQUIPMENT:
Gloves
Adequate lighting, i.e. floor or table lamp

PROCEDURE:
1. Explain the procedure to the patient and/or caregiver.
2. Include family in procedure and teaching to facilitate proper care of patient’s feet.
3. Assess the patient’s history of foot problems:
   a. Any previous problems, i.e., corns, calluses, open areas.
   b. Previous treatment for problems.
   c. Any changes in the feeling in the feet, such as pain, numbness, or tingling, or change in muscle strength.
4. Determine blood sugar readings for the past month.
5. Ask patient to remove any footwear to determine how well the patient can visualize his or her own feet. Inspect both of the patient’s feet.
6. Don gloves and assess patient’s everyday footwear for torn linings, foreign bodies, breathable material, abnormal wear patterns and proper fit.
   a. Instruct patient to wear shoes or slippers and to avoid going barefoot.
   b. Inspect the inside of the patient’s shoes for areas of potential friction or pressure.
   c. Assess for tightness of shoes. Shoes should allow for changes in size during the day.
7. Inspect patient’s sock.
   a. Socks should be clean.
   b. Tops of socks should not be so tight to cause restriction.
   c. Suggest that patient wear white or light colored socks.
   d. Instruct patient and/or caregiver to monitor socks for blood or other for drainage.
8. Inspect the patient’s feet and legs.
   a. Assess for any abnormalities.
   b. Assess for cracks or pressure areas to heel and between the toes.
   c. Inspect the legs for hair growth pattern, dry skin, and skin color changes (signs of decreased circulation include lack of hair and dry skin).
   d. Feel the legs and feet for temperature changes (excessive warmth or dryness). Note the differences from one leg to the other.
   e. Reinforce the need to inspect feet daily.
9. Assess patient’s ability to wash and provide lotion to feet.
10. Assess patient’s toenails. Remove any nail polish prior to assessment.
   a. If toenails exhibit thickening, fungal infection, ingrown corners and/or are misshapen, refer patient to podiatrist.
   b. Instruct patient to keep toenails trimmed straight and smooth. Patient should trim nails after bath or shower.
11. Assess for the presence or absence of pedal pulses. Report any abnormal findings to physician. If patient smokes, instruct patient in the risks associated with decreased circulation to the feet. Encourage patient to consider a plan to stop smoking.
   a. Dorsalis Pedis Pulse.
   b. Posterior Tibial Pulse.
12. Assess ankle strength:
   a. Ask patient to walk a few steps on tiptoe, then on heels. Note whether patient places equal pressure on both feet. If patient is unable to ambulate, position hand on top of the patient’s foot and have patient pull their toes toward their nose while applying gentle downward pressure. Position hand underneath the patient’s foot, while applying gentle upward pressure, instruct patient to press down. Also note if there is equal strength to both ankles.
13. Assess for alteration in foot sensation.
14. After completing the screening, determine the patient’s risk. (See Appendix D - Screening Tool.)
15. Reinforce instructions provided.

AFTERCARE:
1. Document findings in patient’s medical record.
2. Document instructions given to patient and/or caregiver.
3. Report findings to physician.
5. Document coordination with other disciplines.

REFERENCES:

Updated 10/2013
PURPOSE:
To identify potential endocrine problems in the homecare setting.

CONSIDERATIONS:
1. Endocrine system includes Pituitary gland, Pineal gland, Hypothalamus, Thyroid gland, Parathyroid, Thymus, Adrenal glands, Pancreas, Ovaries and Testes.

EQUIPMENT:
Paper
Writing utensil

PROCEDURE:
1. Interview patient in a comfortable setting with minimal distractions if possible.
2. Review of systems:
   a. Alimentary changes:
      (1.) Weight loss versus gain.
      (2.) Wasting.
      (3.) Appetite loss versus increased.
      (4.) Diarrhea.
      (5.) Constipation.
      (6.) Polydipsia [excess drinking].
   b. Integumental changes:
      (1.) Pigmentation changes.
      (2.) Dryness.
      (3.) Sweating.
      (4.) Overgrowth.
   c. Nervous changes:
      (1.) Nervousness, irritability.
      (2.) Fatigue.
      (3.) Headaches.
      (4.) Seizures.
      (5.) Visual loss.
   d. Rheumatoid changes:
      (1.) Shorter stature.
      (2.) Gigantism.
      (3.) Hand, skull bony growth.
   e. Urogenital changes:
      (1.) Polyuria.
      (2.) Menstrual changes.
      (3.) Impotence.
   f. Past medical/surgical history:
      (1.) Congenital problems.
      (2.) Goiter, thyroid problems.
      (3.) Thyroidectomy.
      (4.) Thyroid surgery radiation.
      (5.) Parathyroid, pituitary surgery.
   g. Family history:
      (1.) Condition in a family member.
   h. Social history:
      (1.) Smoking: ever smoked, how many per day, for how long and type.
      (2.) Occupation.
      (3.) Who is with client in the home.
   i. Drug history:
      (1.) Hormone replacement therapy.
      (2.) Thyroid drugs.
      (3.) Diabetic drugs.
      (4.) Prostate disease drugs.
      (5.) Steroids.

AFTER CARE:
1. Document findings in client record.
2. Inform physician of any abnormal findings.

REFERENCES:
PURPOSE:
To provide guidelines for the treatment of the hyperglycemic patient in the home.

CONSIDERATIONS:
1. Hyperglycemia can be defined as a greater than normal amount of glucose in the blood, most frequently associated with diabetes.
2. Hyperglycemia may be the result of a slow or sudden rise in blood glucose.
3. Persistent hyperglycemia has been shown to be a causative factor in such chronic complications as diabetic nephropathy, diabetic retinopathy, cardiovascular complications, and peripheral vascular disease.
4. Causative factors for hyperglycemia include inadequate or inaccurate amounts of insulin and/or oral agents, dietary non-adherence, infection, illness, stress, pain, Myocardial Infarction/Cerebrovascular accident, diuretic or steroid use, female hormones, underlying renal/cardiac disease, total parental nutrition, dehydration, anemia, other medications, inadequate physical activity and/or insulin resistance.
5. Signs and symptoms of hyperglycemia may be absent or unrecognized, but when present may include polyuria, polyphagia, polydypsia, weakness, fatigue and blurred vision.

EQUIPMENT:
Blood glucose meter
Automatic lancing device
Gloves
Alcohol wipe
Puncture-proof container
Impervious trash bag

PROCEDURE:
1. Adhere to Standard Precautions.
2. Review patient's blood glucose log book, if available. Ask about their activity, medication, diet and glucose monitoring results since the last home visit. Assess new blood glucose patterns signaling progression of disease and for symptoms of depression or excursion from recommended treatment plan.
3. Assess for any indication of infection, including but not limited to urinary tract, dental, yeast, skin or upper respiratory infections.
4. Assess for addition of a new medication, particularly those that may increase insulin resistance, for example: steroids, HIV and anti-cancer therapies.
5. Obtain a blood glucose result using a meter for blood glucose monitoring - follow the manufacturer's directions for use of meter. (See Endocrine – Blood Glucose Monitoring with Blood Glucose Meter.) If the blood glucose is greater than 300 mg/dl, repeat the test to assure accuracy.
[Note: To assure that the meter is functioning properly, all quality control tests and proper coding should have been completed with results falling within expected range. If necessary, the machine should be cleaned and the strips checked for any defaults. Batteries generally need replacing after about 1,000 blood glucose checks or after about a year.]
6. If the repeat blood glucose test is still greater than 300 mg/dl, determine possible causative factors. It is recommended that the physician be notified for blood glucose levels greater than 300 mg/dl unless the physician has previously ordered parameters. Unless contraindicated, encourage patient to drink extra water (or other noncaloric, noncaffeinated beverage). If indicated, check ketones as recommended in ketone procedures. (See Endocrine – Urine Testing for Ketones Section.)
7. If patient is sick, patient needs to be taught “sick day” guidelines.
   a. Always take oral medications or insulin.
   b. Monitor blood glucose levels every 3 to 4 hours around the clock.
   c. Drink 8 ounces of calorie-free fluids every hour while awake.
   d. If food is not tolerated, liquids or soft carbohydrate-containing foods (which contain 15 grams of carbohydrates) every other hour are appropriate.
   e. Contact physician if blood glucose levels are greater than 240 mg/dl for two consecutive tests.
   f. Contact physician if vomiting or diarrhea persists for more than 4 to 6 hours.
8. Perform other assessment/treatment protocols per physician's orders.
9. Discard soiled supplies in appropriate containers.

AFTER CARE:
1. Document in patient's record:
   a. Signs or symptoms of hyperglycemia noted.
   b. Results of blood glucose test.
   c. Treatment given and patient's response to the treatment.
   d. Instructions given to patient/caregiver.
2. Notify physician, if indicated.
PURPOSE:
To provide guidelines for the treatment of the hypoglycemic patient in the home.

CONSIDERATIONS:
1. It is difficult to define hypoglycemia on the basis of a specific blood glucose concentration, especially in people with diabetes. However, because lower glucose levels impair defenses against subsequent hypoglycemia, glucose levels lower than 70 mg/dL can be defined as hypoglycemia. Hypoglycemia episodes vary greatly in severity. Due to individual variation in severity, hypoglycemia is defined by symptoms rather than specific blood glucose level. Mild hypoglycemia symptoms may include: sweating, trembling, tachycardia, dizziness, difficulty concentrating, lightheadedness and poor coordination. Severe hypoglycemia symptoms may include: mental confusion, lethargy, inability to self-treat, seizures and loss of consciousness. Be aware that some patients may have asymptomatic hypoglycemia (hypoglycemic unawareness).
2. In some patients, signs and symptoms of hypoglycemia may go undetected by the patient due to normal aging process, autonomic neuropathy, use of beta-blockers and concurrent disease processes. Such individuals may need to be on a regular monitoring schedule, e.g., every 3 or 4 hours.
3. Hypoglycemia is not a disease; it is a condition caused by an underlying problem or disease that prevents the body from maintaining normal levels of glucose in the bloodstream.
4. Symptoms of hypoglycemia in insulin-treated patients can occur precipitously. Causes include medication error, omitting meal or increase in activity. Patient should be coached to have ready source of carbohydrate available at all times.
5. Patients taking insulin or oral agents to treat diabetes should be instructed in the signs and symptoms recognition, treatment and prevention of hypoglycemia.

EQUIPMENT:
Blood glucose meter
Automatic lancing device
Gloves
Alcohol wipe
Puncture-proof container
Impervious trash bag

PROCEDURE:
1. Adhere to Standard Precautions.
2. Obtain blood glucose measurement. (See Endocrine – Blood Glucose Monitoring with Blood Glucose Meter)
3. Treat if blood sugar is 70 mg/dL or less. Also, treat if the blood sugar is between 70-100 mg/dL and the patient is experiencing symptoms of hypoglycemia, e.g., tremors, diaphoresis, hunger or anxiety.
4. Give a rapidly absorbed carbohydrate such as one of the following:
   a. 4 ounces of unsweetened fruit juice. (Apple juice is recommended for patients with impaired renal function.) Repeat after 15 minutes if symptoms continue.
   b. 4 ounces non-diet soda.
   c. 4 teaspoons of sugar in 4 ounces water.
   d. 3 to 4 glucose tablets.
   e. 8 ounce glass of milk (preferably no fat or low fat).
5. Blood glucose should be retested in 15 minutes to determine appropriate rise in blood glucose. (After recovery, patient’s blood glucose level should be checked again in approximately 60 minutes to see if additional treatment is necessary. Older individuals should be monitored closely for another episode of hypoglycemia during the next 24 hours.)
6. If the patient’s next meal is more than one hour away, an additional protein and carbohydrate snack, e.g., sandwich, should be given.
7. Glucagon may be given in the event of loss of consciousness if prescribed by the physician and if the prescription is in the home. (See Endocrine – Glucagon Administration.)
8. In the event of unconsciousness, seizure or coma, emergency transport to the hospital (911) should be arranged.
9. Discard soiled supplies in appropriate containers.

AFTER CARE:
1. Document in patient’s record:
   a. Signs or symptoms of hypoglycemia noted.
   b. Results of blood glucose test.
   c. Treatment given and patient’s response to the treatment.
   d. Instructions given to patient/caregiver.
2. Notify physician of hypoglycemic incident.
PURPOSE:
To introduce a prescribed dose of insulin into the subcutaneous tissue.

CONSIDERATIONS:
1. Insulin may be injected into the subcutaneous tissue of the upper arm, the anterior and lateral aspects of the thigh, the buttocks, and the abdomen (with the exception of a circle within a 2-inch radius of the navel).
2. Rotation of the injection site is important to prevent lipohypertrophy or lipoatrophy. Rotating within one area is recommended (e.g., rotating injections systematically within the abdomen) rather than rotating to a different area with each injection. This practice may decrease variability in absorption from day to day.
3. Site selection should take into consideration the variable absorption between sites. The abdomen has the fastest rate of absorption, followed by the arms, thighs and buttocks. (Insulin glargine does not exhibit different absorption rates at different sites.)
4. Exercise increases the rate of absorption from injection sites.
5. Avoid injecting insulin into areas of hypertrophy or atrophy or scarring. This condition interferes with absorption and can scar or desensitize the area.
6. With physician approval and certain precautions, disposable insulin syringes may be reused on the same patient. Syringes should be discarded when the needle becomes dull, is bent or has touched any surface other than the skin. Patients with poor personal hygiene, open wounds on the hands or decreased resistance to infection should not reuse syringes because of the increased risk of infection. The patient or caregiver must have adequate vision and manual dexterity to be capable of safely recapping syringes for reuse.
7. Instruct patient/caregiver to cap the used syringe until the next dose. The needle should not be wiped with alcohol. Syringes must be discarded according to local regulations. When no other regulations are in place they can be discarded in an impervious screw-top bleach or liquid soap bottle that is tightly sealed, taped and labeled “Do Not Recycle.” Discarded with the regular trash. If the homecare nurse is prefilling insulin for the patient, syringes should not be reused due to the risk of needlesticks.
8. Insulin administration is an appropriate procedure to teach to patients and caregivers.
9. Vials of insulin not in use should be refrigerated. Extreme temperatures (< 36 degrees or > 86 degrees Fahrenheit, < 2 or > 30 degrees Celsius) and excess agitation should be avoided to prevent loss of potency, clumping, frosting or precipitation.
10. Insulin in use may be kept in the refrigerator until the date of expiration.

EQUIPMENT:
Insulin syringe with 24-30 gauge needle, 5/16 (five-sixteenths) to 1/2 (one-half) inch long filled with prescribed dose of insulin
Alcohol wipe
Gloves
Puncture-proof container
Impervious trash bag

PROCEDURE:
1. Adhere to Standard Precautions.
2. Explain procedure to patient.
3. Select an appropriate injection site.
4. Clean the injection site by wiping an alcohol wipe in a circular motion starting at the center and moving outward. If patient skin is clean and dry, then alcohol wipe is not necessary.
5. Pinch up a large area of skin and insert the needle into the skin at a 90 degrees angle. (Thin individuals or children may require use of short needles and needle insertion at a 45 degree angle.)
6. Release the skin and depress the plunger all the way down the barrel. (Aspiration is not necessary.)
7. Hold an alcohol wipe over the site and pull the needle straight out. DO NOT massage the area.
8. Discard soiled supplies in appropriate containers.

AFTER CARE:
1. Document in patient’s record:
   a. Medication, dosage and site of administration.
   b. Patient’s response to procedure.
   c. Instructions given to patient/caregiver.
   d. Communication with physician.

REFERENCES:
**PURPOSE:**
To provide guidelines for preparation and administration of insulin into the subcutaneous tissue using an insulin pen.

**CONSIDERATIONS:**
1. There are a number of different brands and models of insulin pens available. Most fall into one of two groups:
   a. **Reusable insulin pen:**
      1. Load it with a cartridge of insulin (generally sold 5 cartridges to a box).
      2. Cartridges hold 150 or 300 units of insulin. Depending on the dose, the insulin cartridge may last several days.
      3. When cartridge is empty, throw it away and load a new cartridge.
      4. A reusable pen can often last several years.
   b. **Disposable insulin pen:**
      1. Comes filled with insulin and is thrown away when it is empty.
      2. Most pens hold 300 units of insulin and are sold in boxes of 5.
2. Using a reusable insulin pen:
   a. An insulin cartridge must be loaded into the pen (sold separately in boxes of 5 cartridges).
   b. Turn cartridge up and down several times before inserting it into pen.
   c. When the cartridge is empty, throw it away and load a new cartridge.
3. Using disposable pens:
   a. These come filled with insulin.
   b. The entire pen is thrown away when all of the insulin is used.
4. Always use a new needle with each injection (to prevent insulin from leaking from the pen into the needle or air bubbles from forming in the cartridge).
5. Check with the specific manufacturer prior to use as they are constantly being updated. General practice includes:
   a. Insulin pens need to have an outer plastic shield and inner plastic or rubber shield to protect the needle.
   b. Prime prior to each use of the pen, and if no flow of insulin, replace needle.
   c. When starting a new cartridge or disposable pen, sometimes you may need to dial up several units to get a flow of insulin.
   d. If you dial the wrong number of units of insulin, read instructions for correcting the dose. Because some pens can be dialed backwards and some cannot.
6. Insulin pens are not for all users:
   a. May be more expensive.
   b. Some insulin is wasted when pens are used, 1-2 units are lost each time the pen is primed.
   c. There is usually some insulin left in the pen or cartridge, but not enough to inject when they are used up.
   d. Not all insulin is available for use in a pen cartridge.
   e. Insulin pens do not let you mix insulin types, so 2 injections must be given of each type of insulin, if needed.
7. **Insulin pens and cartridges are NEVER to be shared among patients.** Sharing insulin pens may result in transmission of hepatitis viruses, HIV, or other blood-borne pathogens. 
   [Note: The pens are for single patient use even if the needles are changed between patients.]

**EQUIPMENT:**
- Insulin pen, needle and insulin cartridge (if using reusable pen)
- Alcohol
- Gloves
- Puncture-proof container

**PROCEDURE:**
1. Adhere to Standard Precautions.
2. Explain procedure to patient.
3. Pull cap off insulin pen.
4. Unscrew and remove the cartridge holder from the barrel.
5. Make sure the dose indicator window at end of pen shows a zero (press and push button at end all the way in or may have to turn knob either up or down).
6. The zero should be lined up with the vertical black line or arrow on the side of the dose indicator window.
7. The end of the piston rod should be flat against the end of the reset mechanism prior to inserting a new cartridge.
8. If the rod is not flat against the end, turn the base of the pen part either clockwise or counter-clockwise (on some pens, there is a colored ring below the piston rod that has to line up in grooves to lock into place).
9. Insert insulin cartridge, metal-end first into cartridge holder and screw cartridge holder onto the base of the pen (if it does not screw on tight, the piston rod may not be in completely, so repeat Step 8).
10. For Aventis Lantus OptiClik Pen, push dosage knob all the way in and insert cartridge straight into the pen and it will lock into place (piston rod is at end of insulin cartridge).
11. Wipe clean the end of the cartridge and holder with alcohol before attaching the needle.
12. Remove the paper seal from the needle unit and screw needle onto the cartridge.
13. Pull off the outer plastic shield from the needle and set aside.
14. Pull off the inner plastic shield and discard.
15. Hold insulin pen straight up and tap cartridge holder several times with finger to raise any air bubbles that may be present to the top.
16. REMEMBER: always do an air shot prior to injection (to prime needle).
17. With **Novo Nordisk pen**, check that dose selector is at zero for priming or injecting a dose of insulin. Turn knob clockwise to 2 units and press the button at the end of pen until insulin comes out of the tip of needle. Repeat process if this does not occur.
18. With **Lilly pen**, an arrow must appear in the center of the dose window before you can dial up a dose of insulin for priming or injecting. To do this, set dose button to zero, pull out dose button and turn clockwise to two units and push button in again until insulin comes out of the tip of needle.
19. With **Aventis OptiClik pen**, press the start button on the back side of pen (button closest to end of pen), dosage knob will come out and “00” appears in the window. Turn dosage knob clockwise until “01” appears in window and press dosage button fully until insulin comes out of needle tip.
20. Clean the injection site with alcohol and let dry.
21. Insert needle at 90 degree angle and press dose button on end of pen until it locks into place
22. Hold button in for 5 to 10 seconds and then remove immediately.
23. With **Novo Nordisk pen**, the dose line should line up with the zero once you have injected the number of units dialed (if line is not on zero the button will not push in all the way, your cartridge is probably empty and you haven’t received the full dose).
24. With **Lilly Insulin pen**, a diamond must be in the dose window to ensure the full dose of insulin was given.
25. With **Aventis OptiClik pen**, the dose display shows the delivered dose for two minutes after injection and then “00” appears in window (this pen will not allow you to dial up dose greater than what is in cartridge).
26. Place the outer needle shield on needle and unscrew needle to dispose of.

**Disposable Insulin Pen: (Lilly and Novo Nordisk Insulin Pen)**

1. You will not have to do Steps 1-13 above using disposable insulin cartridges.
2. Starting with Step 14, follow same procedure.
3. If using a pen that contains NPH or a NPH mixture, roll pen between fingers 10 times to mix.

**AFTER CARE:**

1. Document in patient record procedure and relevant findings.
2. Notify physician of any adverse or relevant findings.
PURPOSE:
To prepare a mixed dose of short acting and intermediate/long acting insulin.

CONSIDERATIONS:
1. When combining insulins in a syringe, make sure they are compatible. The following insulins may be combined:
   a. Novolog (Lispro) and Humalog (Aspart), Rapid acting insulin, can be mixed with NPH if provided by the same manufacturer and are administered within 15 minutes after mixing.
   b. Regular (short acting insulin) and NPH can be mixed.
   c. Glargine (Lantus): Cannot be mixed with other insulin.
2. Rapid acting or Regular insulin is drawn up first, followed by intermediate/long acting insulin; use within 15 minutes.
3. Mixing insulin for future use (pre-drawing insulin):
   a. Novolog, Humalog, and Lantus are not recommended for pre-drawn use,
   b. Novolin NPH and Regular insulin may be stored for 30 days, if refrigerated.
   c. Humulin NPH and Regular insulin may be stored for 21 days, if refrigerated.
   d. Pre-drawn syringes should be stored with the needle pointing up so particles do not clog the needle.
4. All pre-drawn syringes should be gently rolled between the hands before use to mix.
5. Insulin administration is an appropriate procedure to teach to patients and caregivers.
6. Vials of insulin not in use should be refrigerated. Extreme temperatures (< 36 degrees or > 86 degrees Fahrenheit, <2 degrees or > 30 degrees Celsius) and excess agitation should be avoided to prevent loss of potency, clumping, frosting, or precipitation. Insulin in use may be kept at room temperature for 28 to 30 days after opening.
7. An opened vial of insulin refrigerated or stored at room temperature should be discarded 30 days after opened.

EQUIPMENT:
Two types of ordered insulin
Insulin syringes (0.3, 0.5, 1 or 2 mL capacity) with 24-31 gauge needle, 5/16 (five-sixteenths) to 1/2 (one-half) inch long or needleless adaptors
Alcohol wipe

PROCEDURE:
1. Adhere to Standard Precautions.
2. Check physician's order for both types of insulin dosages, frequency, and route of administration. Check the insulin vials for the type, strength, and expiration date. Mix the insulins by rolling the vials between your palms approximately 20 times. DO NOT shake the vials.
3. Use an alcohol swab to cleanse the rubber stopper on top of both vials. Allow to air dry.
4. Draw air into the syringe in an amount equal to the prescribed dose of longer acting insulin or NPH insulin. Inject all the air into the NPH vial. Remove the syringe from the vial.
5. Draw air into the syringe in an amount equal to the prescribed dose of rapid acting insulin or regular insulin. Inject air into the regular insulin vial. Invert the vial and withdraw the prescribed dose of regular insulin.
6. Before removing syringe from regular insulin vial, check for air bubbles in the syringe barrel. If present, lightly tap the syringe with your finger. Push up slightly on the plunger to force the air back into the vial. Make sure the syringe still contains the prescribed dose of insulin. If not, draw up the amount needed. Withdraw needle and syringe.
7. Insert needle into longer acting insulin or NPH vial and invert vial. Withdraw the correct amount of NPH insulin, being sure not to push any regular insulin into the vial. If regular insulin is discharged into the NPH insulin vial, the vial will have to be discarded.
8. Follow insulin administration procedure and inject insulin into subcutaneous tissue. Aspiration is not necessary.

AFTER CARE:
1. Document in patient's record:
   a. Medication, type and amount prepared.
   b. Date and time administered.
   c. Patients response.
   d. Instructions given to patient/caregiver.
PurPOSE:
To prepare a single dose of insulin.

CONSIDERATIONS:
1. Rapid acting (lispro/aspart/glulisine), short acting (regular) and long-acting (glargine / detemir) insulins are clear.
2. Intermediate acting (NPH) insulin and combinations (e.g., 70/30) are suspensions and must be rotated slowly about 20 times to mix the insulin.
3. Insulins are identified by:
   a. Brand name, such as Humulin®, Novolin®, Apidra, Levemir, or Lantus®.
   b. Type, such as lispro/aspart/glulisine, regular, NPH, detemir, or glargine.
   c. Concentration (U-100 contains 100 units of insulin for each ml of liquid).
   d. Species (human or insulin analogs).
4. Unopened vials of insulin should be refrigerated. Extreme temperatures (< 36 degrees or > 86 degrees Fahrenheit, < 2 degrees or > 30 degrees Celsius) and excess agitation should be avoided to prevent loss of potency, clumping, frosting or precipitation.
5. Vials in current use may be stored at room temperature to help prevent local irritation at injection site, which occurs when cold insulin is used. A slight loss in potency may occur after a bottle of insulin has been in use for > 30 days. Patients should be instructed to discard insulin after it has been opened for 30 days at room temperature. (28 days for glargine/Lantus.)
6. Patients should be taught to store insulin according to the manufacturers’ recommendations.

EQUIPMENT:
Insulin prescribed
Insulin syringe (0.3, 0.5, 1 or 2 mL capacity) with 24-31 gauge needle, 5/16 (five-sixteenths) to 1/2 (one-half) inch long, or needle less adaptor
Alcohol wipe

PROCEDURE:
1. Adhere to Standard Precautions.
2. Check physician's order for type of insulin, dosage, and frequency. Check the insulin vial for type, strength, and expiration date. Mix the insulin by rolling the vial between your palms. Shaking the vial causes bubbles but does not hurt the insulin.
3. Use an alcohol wipe to cleanse the rubber stopper on top of the vial. Inject an equal amount of air into the vial before drawing up the insulin. Draw up the correct dosage. If air bubbles are in syringe, push up plunger to release.
4. Follow insulin administration procedure and inject insulin into subcutaneous tissue. Aspiration is not necessary.

AFTER CARE:
1. Document in patient's record:
   a. Medication, type, and amount prepared.
   b. Instructions given to patient/caregiver.
ENDOCRINE – INSULIN PUMP THERAPY

SECTION 3.11

Strength of Evidence Level: 3

PURPOSE:
To provide guidelines for nursing interventions when the patient is using an insulin pump for diabetes management. To outline precautions to be observed in special populations: children, adolescents and pregnant women.

CONSIDERATIONS:
1. Persons using insulin pump therapy to control diabetes should:
   a. Be adequately trained in ongoing management of the insulin pump by a certified trainer.
   b. Have full support of the healthcare team for setting basal rates; for establishing insulin-to-carbohydrate ratio and correction factors; troubleshooting pump-related problems prior to being admitted for homecare services.
2. Indications for pump therapy:
   a. Inadequate blood glucose control, which is defined as HbA1c above target (7%).
   b. Desire for flexibility in lifestyle.
   c. Marked daily variations in glucose levels.
   d. Low insulin requirements (less than 20 units/day).
3. Pump users should be aware of emergency action to be taken for hyperglycemia. This generally is to remove pump and take insulin by injection until blood glucose is on target.
4. Insulin pump therapy is managed by using only short or rapid acting insulin. Without background insulin, it is important that blood glucose be monitored frequently for early detection of hyperglycemia. Diabetic ketoacidosis (DKA) can develop within 4 to 6 hours of interruption of insulin delivery.
5. Homecare nurse should be able to:
6. Scroll through pump screen for total insulin delivered in 24 hours.
   a. Assess patient’s skill and confidence in successfully using pump therapy.
   b. Assess past 2 to 3 insertion sites for signs of infection.
   c. Document patient’s basal rates, insulin-to-carbohydrate ratio and correction factor in patient record.

EQUIPMENT:
Insulin pump
Prescribed insulin
Tubing
Cartridge
Blood glucose monitoring equipment

PROCEDURE:
1. Coach patient or caregiver that blood glucose testing is necessary at least 4 to 6 times per day.
2. Inspect insertion site at each visit. Make sure that there are no cuts or air in tubing.
3. Assess for hypoglycemia and hyperglycemia.
   a. Hypoglycemia
      (1) Review carbohydrate take.
      (2) Review treatment of hypoglycemia.
      (3) Advise physician of blood glucose levels.
   b. Hyperglycemia
      (1) Same as above.
      (2) Assess signs and symptoms of infection, including inspecting recent insertion sites.

   [Note: If blood glucose is above target, patient should bolus insulin dose according to correction factor and check blood glucose in two hours. If blood glucose continues to rise, pump should be discontinued and insulin given by injection and physician notified.]

AFTER CARE:
1. Document in patient record the procedure and relevant findings.
2. Notify physician of any adverse or relevant findings.
3. Notify physician when caregiver is unable to demonstrate pump protocols.
4. If blood glucose is above target, patient should bolus insulin dose according to correction factor and check blood glucose in 2 hours. If blood glucose continues to rise, the pump should be discontinued, insulin should be given by injection and the physician notified.
Endocrine – Obtaining Blood Samples: Finger Stick

Strength of Evidence Level: 3

PURPOSE:
To obtain blood for laboratory examination and/or blood glucose monitoring in the home.

CONSIDERATIONS:
1. An automatic lancing device will be used to obtain capillary blood samples from the fingertip using disposable, self-contained lancets.
2. Any finger may be used to obtain a blood sample; the sides of the fingertips are preferred as there are fewer nerve endings, the skin is less calloused and there is greater blood supply.
4. DO NOT squeeze the puncture site.
5. If patient uses clean technique in obtaining own blood sample, lancet can be reused.

EQUIPMENT:
Gloves
Automatic lancing device
Capillary tubes or reagent strip, if appropriate
Cotton ball
Self-adhesive bandage
Puncture-proof container
Impervious trash bag

PROCEDURE:
1. Adhere to Standard Precautions.
2. Explain procedure to patient.
3. Assemble the equipment on a clean surface close to patient.
4. Have the patient wash hands in warm soapy water. An antibacterial soap may be used. Have patient completely dry hands and allow the hands to hang at the patient’s sides for at least 30 seconds.
5. Load the lancing device following the manufacturer's direction.
6. Place the lancing device on finger with the lancet opening resting against the selected puncture site.
7. Push the release button without moving either the device or the finger.
   [Note: Pressing the lancing device more firmly against the finger will cause a deeper puncture.]
8. Gently milk finger from base to tip, gently pressing as you move down the finger, forming a large drop of blood on the fingertip.
9. To enhance the flow of blood to the fingertip, the following procedures may be used:
   a. Warm the site (by washing the hands in warm water or by using warm compresses).
   b. Before performing the finger puncture, relax the arm for several seconds while holding it down to the side.
   c. Hold the hand below the level of the heart when performing the finger puncture.
10. If obtaining blood for blood glucose monitoring, apply specimen to the test strip and follow the meter’s instructions to complete the test.
11. If obtaining a capillary tube specimen, fill the capillary tube by placing the tube against the puncture site at a 20 to 40 degree angle until the tube is filled. Fill one end of the tube with clay.
12. Apply cotton ball to puncture site and firmly apply pressure to stop bleeding. Apply self-adhesive bandage if necessary.
13. Discard soiled supplies in appropriate containers.

AFTER CARE:
1. Document in patient’s record:
   a. Patient's response to procedure.
   b. Procedure and observations.
   c. Laboratory where specimen is taken and test ordered.
   d. Blood glucose results if a meter for blood glucose monitoring was used.
   e. Instructions given to patient/caregiver.
   f. Communication with physician.
2. Encourage patient to record results in log book.
Endocrine – Pre-filling Syringes

Strength of Evidence Level: 3

PURPOSE:
To provide a guideline for pre-filling and storing insulin syringes that will be injected by patient or caregiver at a later time.

CONSIDERATIONS:
1. The pre-filling of syringes should be considered when a patient and/or caregiver are unable to accurately measure insulin but are able to competently administer the injection.
2. Mixing insulin for future use (pre-drawing insulin)
   a. Novolog, Humalog, and Lantus are not recommended for pre-drawn use unless commercially prepared.
   b. Novolin NPH and Regular insulin may be stored for 30 days if refrigerated.
   c. Humulin NPH and Regular insulin may be stored for 21 days if refrigerated.
3. If patient uses pre-filled syringes with mixtures of regular insulin and NPH, the most consistent effect will be obtained only in syringes that have been filled at least 24 hours prior to use for injection. For example, if the nurse visits once a week, the patient should use a syringe that was filled by the nurse on the previous visit NOT a syringe freshly mixed on the day of the visit.
4. Pre-drawn syringes should be stored with the needle pointing up so particles do not clog the needle.
5. All pre-drawn syringes should be gently rolled between the hands before injection to adequately re-suspend the insulin preparation.
6. Prefilled syringes containing commercially mixed insulin (70/30, 50/50, etc.) and single insulin may be stored in the refrigerator for 21 to 30 days (verify with manufacturer recommendations).
7. Insulin glargine (Lantus) cannot be mixed with any other insulin and is NOT recommended for prefilling. (Commercial pens (Opticlik) are available with glargine).

EQUIPMENT:
Insulin prescribed
Insulin syringes with 24 to 30 gauge needle 5/16 or 1/2 inch-long or needle-less adaptors
Alcohol wipe
Container for syringes in refrigerator

PROCEDURE:
1. Adhere to Standard Precautions.
2. Refer to procedure. (See Endocrine – Insulin Preparation: Single Insulin Dose) and (See Endocrine – Insulin Preparation: Mixed Insulin Dose.)
3. Place filled syringes in a marked container with syringe tip up in the refrigerator.
4. Instruct patient and caregiver on use of pre-filled syringes.
5. Establish a syringe count to assess adherence.

AFTER CARE:
1. Document in patient’s record:
   a. Reason pre-filled syringes are needed.
   b. Medication, type and amount of syringes pre-filled.
   c. Instructions given to patient/caregiver.
PURPOSE:
To identify nodules and/or goiters in the homecare patient.

CONSIDERATIONS:
1. Palpating the thyroid gland can release thyroid hormone into the circulation and could spark a thyroid storm if the patient has hyperthyroidism. Do NOT palpate the thyroid if it is visibly enlarged.
2. The thyroid gland can be palpated by posterior or anterior approach.
4. Hyperthyroidism: Excessive thyroid hormone production most often caused by Graves disease or an overactive thyroid nodule.
5. Hypothyroidism: Low production of thyroid hormone most often caused by thyroid injury caused by autoimmune disease.

EQUIPMENT:
Personal protective equipment, if indicated

PROCEDURE:

Posterior Approach:
1. Patient should be positioned upright.
2. Approach patient from behind.
3. Ask patient to lower chin and relax neck muscles.
4. Start by locating the thyroid isthmus, placing thumbs at the back of the patient’s neck with fingertips extending around to the front of the neck and resting over the lower half of the trachea. Instruct the patient to swallow. You will feel the isthmus rise with the swallow.
5. To palpate the right lobe, have the patient keep chin down and then slightly flex the neck to the right.
6. Using your right hand, displace the sternocleidomastoid (SCM) muscle to the right. Use the fingertips of your left hand to palpate the right thyroid lobe. Instruct the patient to swallow again. You will feel the right lobe of the thyroid as the swallow occurs.
7. Assess the left lobe in similar fashion, having the patient tip head to left, using left hand to displace SCM muscle and use the fingertips of the right hand to palpate the left lobe of thyroid.

Anterior Approach:
1. Approach patient from front and slightly to one side.
2. Palpate the cricoid cartilage as patient swallows using index and middle fingers.
3. To palpate the lobes, place your fingers on either side of the trachea.

AFTER CARE:
1. Document assessment and findings in patient’s medical record.
2. Document instructions given to patient and/or caregiver.
3. Report findings to physician and document communication with physician.

REFERENCES:

PURPOSE:
To monitor diabetes control by measuring for urine acetone.

CONSIDERATIONS:
1. Testing for urine ketones is indicated for:
   a. Patients with Type I Diabetes with blood glucose levels greater than 300, when ill or when pregnant.
   b. Patients with gestational diabetes who follow hypocaloric or carbohydrate-restricted diet (pre-breakfast ketone testing recommended).
   c. Pregnant women with pre-existing diabetes with blood glucose greater than 200, during illness or if unable to eat due to nausea/vomiting.
   d. Children and adolescents with Type 1 Diabetes with blood glucose greater than 240 and during illness.
   e. Patients using an insulin pump.
   f. Patients with Type I Diabetes that are restricting calories to lose weight.
   g. Pregnant women with diabetes and weight loss.
2. Notify physician when moderate to large (40 mg/dl to 160 mg/dl) ketones are present.
3. Replace cap of reagent strip container promptly and tightly. Once the seal is broken on the reagent bottle, the strips are good for only four months. Date bottle when opened. (If using strips sealed in foil, open just before use.)
4. Reagent strips must be protected from heat and moisture. They should not be stored in the bathroom or kept in a car.
5. Do NOT touch test area of reagent strip. Do NOT use if reagent strip is discolored or beyond expiration date of opened bottle.
6. Patients doing their own ketone urine testing must be able to differentiate between color and corresponding readings.

EQUIPMENT:
- Gloves
- Urine reagent strips and container with color chart
- Specimen container with freshly voided urine specimen
- Watch with second hand
- Impervious trash bag

PROCEDURE:
1. Adhere to Standard Precautions.
2. Inspect bottle to ensure the reagent strips have not expired.
3. Remove one reagent strip from container and replace cap. (One sealed strip may be opened.)
4. Follow manufacturer's guidelines for specific steps in testing urine.
5. Discard soiled supplies in appropriate containers.

AFTER CARE:
1. Document in patient's record:
   a. Patient's response to procedure.
   b. Results of urine testing.
   c. Presence of any signs or symptoms of hyper or hypoglycemia.
   d. Instructions given to patient/caregiver.
   e. Patient's/caregiver's ability to return and demonstrate procedure.
2. Report to physician if follow-up care is needed.
Diabetic Foot Screen for Loss of Protective Sensation

National Hansen's Disease Programs, LEAP Program, 1770 Physicians Park Dr., Baton Rouge, LA 70816

Filament Application Instructions:
1) Show the filament to the patient and touch it to his/her hand or arm so that he/she knows it does not hurt.

2) Use the 10 gram filament to test sensation at the indicated sites on each foot as shown. Apply the filament along the perimeter of and NOT on an ulcer, callous, scar, or necrotic tissue.

3) Hold the filament perpendicular to the skin and use a smooth motion when testing. Use a 3 step sequence that includes (1) touch the skin, (2) bend the filament, and (3) lift from the skin (See Figures 1-3). Do not use rapid movement. The approach, skin contact, and departure of the filament should be approximately 1½ seconds duration.

4) Ask the patient to respond “yes” when the filament is felt. If the patient does not respond when you touch a given point on the foot, continue on to another site. When you have completed the sequence, REPEAT the area(s) where the patient did not indicate feeling the filament.

5) Use the filament in a random sequence.

6) On the form, indicate with a minus sign, “—”, the areas where the patient did not respond to the filament. LOSS OF PROTECTIVE SENSATION AT ANY ONE OF THE EIGHT SITES INDICATES A FOOT AT HIGH RISK.

7) If you wish to clean the filament, use sodium hypochlorite (household bleach) 1:10 solution or follow the infection control disinfecting guidelines in your facility.
Self Testing Instructions
(You may screen your own feet or ask a relative, friend, or neighbor to do it for you)

Step 1
1. Hold the red filament by the paper handle, as shown in Step 1.

Step 2
2. Use a smooth motion to touch the filament to the skin on your foot. Touch the filament along the side of and NOT directly on an ulcer, callous, or scar. Touch the filament to your skin for 1-2 seconds. Push hard enough to make the filament bend as shown in step 2.

3. Touch the filament to both of your feet in the sites circled on the drawing below.

4. Place a (+) in the circle if you can feel the filament at that site and a (-) if you cannot feel the filament at that site.

5. The filament is reusable. After use, wipe with an alcohol swab.

Diabetic Foot Screen Test Sites
If you have a (-) in any circle, take this form to your health care provider as soon as possible.

Date ________   Date ________
Instrucciones Para El Auto Examen
(Usted puede examinar sus propios pies o pedirle a un pariente, amigo, o vecino que lo haga por usted)

1. Sostenga el filamento rojo por el agarrador de papel (vea el paso 1).
2. Toque con movimiento suave la piel de su pie con el filamento. Toque a un lado de, y NO directamente en una ulcera, callo, o cicatriz. Hagalo por 1-2 segundos. Empuje firmemente para hacer que el filamento se doble (vea el paso 2).
3. Toque ambos pies con el filamento en los lugares indicados con un círculo que aparece en el dibujo de abajo.
4. Ponga una “+” en el círculo si es que usted siente el filamento en ese lugar y un “-“ si es que usted no siente el filamento en ese lugar.
5. El filamento se puede usar nuevamente. Después de usarlo, limpielo con un algodón con alcohol.

LUGARES DEL PIE DEL DIABETICO PARA HACER EL EXAMEN DE EVALUACION
Si usted tiene “-“ en cualquier círculo, lleve esta forma a su proveedor de cuidado de salud lo mas pronto posible.
Diabetes Foot Screen

Name (Last, First, MI) _____________________________   Date: _____/_____/_____ 

Fill in the following blanks with a "Y" or "N" to indicate findings in the right or left foot.

<table>
<thead>
<tr>
<th>R</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is there a history of a foot ulcer?</td>
<td>_______</td>
</tr>
<tr>
<td>Is there a foot ulcer now?</td>
<td>_______</td>
</tr>
<tr>
<td>Is there a claw toe deformity?</td>
<td>_______</td>
</tr>
<tr>
<td>Is there swelling or an abnormal foot shape?</td>
<td>_______</td>
</tr>
<tr>
<td>Is there elevated skin temperature?</td>
<td>_______</td>
</tr>
<tr>
<td>Is there limited ankle dorsiflexion</td>
<td>_______</td>
</tr>
<tr>
<td>Are the toenails long, thick or ingrown?</td>
<td>_______</td>
</tr>
<tr>
<td>Is there heavy callous build-up?</td>
<td>_______</td>
</tr>
<tr>
<td>Is there foot or ankle muscle weakness?</td>
<td>_______</td>
</tr>
<tr>
<td>Is there an absent pedal pulse?</td>
<td>_______</td>
</tr>
<tr>
<td>Can the patient see the bottom of their feet?</td>
<td>_______</td>
</tr>
<tr>
<td>Are the shoes appropriate in style and fit?</td>
<td>_______</td>
</tr>
</tbody>
</table>

Note the level of sensation in the circles:

+ = Can feel the 5.07 filament  — = Can't feel the 5.07 filament

Skin Conditions on the Foot or Between the Toes:

Draw in: Callous , Pre-ulcer , Ulcer (note length and width in cm)
Label with: R - redness, M - maceration, D - dryness, T - Tinea

RISK CATEGORY:

____ 0  No loss of protective sensation.
____ 1  Loss of protective sensation
____ 2  Loss of protective sensation with either high pressure (callous/deformity), or poor circulation.
____ 3  History of plantar ulceration, neuropathic fracture (Charcot foot) or amputation.

Rev. 03/22/02    LSUHSC Diabetes Foot Program                      Performed by ________________________________
Diabetes Foot Screen Instructions

Section 1:

The twelve questions can be answered in the ‘R’ (right foot) or ‘L’ (left foot) blank with a ‘Y’ or ‘N’ to indicate a positive or negative finding. Fill in all blanks.

**Question 1: Is there a history of foot ulcer?**
**Question 2: Is there a foot ulcer now?**
The purpose of these questions is to determine if the patient currently has or has ever had an ulcer on the foot. History of a foot ulcer places the patient at an increased risk of developing another foot ulcer and increases the potential of future amputation. The patient with a past or present foot ulcer is considered permanently in Risk Category 3.

**Question 3: Is there toe deformity?**
**Question 4: Is there an abnormal shape of the foot?**
This is determined by inspecting the general shape of the patient’s foot. Conditions to consider include: prominent bony areas, partial or complete amputations of the foot or toes, clawed toes, bunions, or "Charcot Foot".

A Charcot Foot is a neuropathic foot may present with swelling, increased temperature, and little or no pain. Advanced cases show progressive signs of deformity into what is referred to as a "rocker bottom" or "boat shaped" foot. A patient with a Charcot Foot is permanently in Risk Category 3.

**Question 5: Are the toenails thick or ingrown?**
Identify Mycotic, significantly hypertrophic or ingrown nails.

**Question 6: Is there callus buildup?**
Identify focal and/or heavy callous.

**Question 7: Is there swelling?**
Swelling may stem from a variety of causes such as a Charcot fracture, infection, or "venous stasis".

**Question 8: Is there elevated skin temperature?**
Elevated, localized skin temperature can indicate excessive mechanical stress, bone fracture, or an infection and requires further evaluation. Skin temperature can be measured by a commercially available thermometer or by touch. A temperature elevation of greater than 2 degrees centigrade on the thermometer or a noticeable difference by touch when compared with the contralateral foot is considered clinically significant.

**Question 9: Is there muscle weakness?**
A manual muscle test of foot and great toe dorsi and plantar flexion.
Question 10: Can the patient see the bottom of his/her feet?
Obesity and/or lack of flexibility can prevent a patient from seeing his/her feet. Self-inspection and foot care is difficult with these limitations often requiring family or outside assistance.

Question 11: Is the patient wearing improperly fitted shoes?
An improperly fitted shoe may create foot pressures that lead to further complications. Patients with sensory loss often wear shoes that are too short and/or narrow resulting in ischemic ulcers on the medial or lateral metatarsal heads or the toes of a foot with claw toe deformity. Properly sized added depth shoes with soft custom molded insoles are usually indicated for patients with loss of sensation and deformity to prevent ulceration.

Question 12: Does the patient use footwear appropriate for his/her category?
See risk and management categories.

Section 2:
Examine the foot and record problems identified on the Foot Screen form. Draw calluses, pre-ulcerative lesions (a closed lesion i.e. blister or hematoma) or open ulcers as accurately as possible using the appropriate “pattern” to indicate what type of condition is present. Label areas that are red "R", warm "W" (warmer than the other parts of the foot or the opposite foot), dry "D" or macerated "M" ( friable, moist, soft tissue) on the corresponding location of the foot drawing provided on the screen form.

A sensory exam using the 10 gram monofilament is performed at the indicated on the foot drawing. Responses are recorded in the appropriate circles. A positive response is recorded in the corresponding circle with a "+" if the patient is able to feel the filament and a negative response is recorded with a "-" if the patient cannot feel the filament.

Section 3:
The accurate placement of patients into their respective Risk Category is a key element in the Foot Screen. The higher the Risk Category, the higher the risk a patient has of recurrent foot ulceration, progressive deformity, and ultimately, amputation of the foot. All patients, regardless of category, should be re-screened annually and should be given basic patient education.

A detailed description of the Risk Category is available in the document “Risk and Management Categories for the Foot.”
Comprehensive Diabetes Lower Extremity Amputation Prevention Program

Risk and Management Categories for the Foot

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Diabetes, but no loss of protective sensation in feet</td>
</tr>
<tr>
<td>1</td>
<td>Diabetes, loss of protective sensation in feet</td>
</tr>
<tr>
<td>2</td>
<td>Diabetes, loss of protective sensation in feet with high pressure (callout/deformity), or poor circulation.</td>
</tr>
<tr>
<td>3</td>
<td>Diabetes, history of plantar ulceration or neuropathic fracture.</td>
</tr>
</tbody>
</table>

Note: “loss of protective sensation” is assessed using a 5.07 monofilament at 10 locations on each foot.

<table>
<thead>
<tr>
<th>Category</th>
<th>Management Category</th>
</tr>
</thead>
</table>
| 0        | Education emphasizing disease control, proper shoe fit/design  
Follow-up yearly for foot screen  
Follow as needed for skin/callus/nail care or orthoses |
| 1        | Education emphasizing disease control, proper shoe fit/design, daily self-inspection, skin/nail care, early reporting of foot injuries  
Proper fitting/design footwear with soft inserts/soles  
Routine follow-up 3 – 6 months for foot/shoe examination &nail care |
| 2        | Education emphasizing disease control, proper shoe fit/design, self-inspection, skin/nail/callus care, early reporting of foot injuries  
Depth-inlay footwear, molded/modified orthoses; modified shoes as needed  
Routine follow-up 1 – 3 months for foot/activity/footwear evaluation and callus/nail care |
| 3        | Education emphasizing disease control, proper fitting footwear, self-inspection, skin/nail/callus care and early reporting of foot injuries  
Depth-inlay footwear, molded/modified orthoses; modified/custom footwear, ankle-foot orthoses as needed  
Routine follow-up 1 – 12 week for foot/activity/footwear evaluation and callus/nail care |

Diabetic Foot Clinic visit frequency may vary based on individual patient needs.
REFERENCES


