INTRODUCTION

Since medical assistants are so versatile, they sometimes work in outpatient infusion centers. Whether the facility is an emergency room, a cancer center, a dialysis clinic, or a physician’s office, the medical assistant must be familiar with the purpose and process of infusion therapy. Depending on the specific facility’s protocols, medical assistants can insert, monitor, and remove intravenous supplies. It is therefore vitally important that the medical assistant understand the reasons for the infusion therapy, the advantages and disadvantages of intravenous therapy, the potential complications, the proper insertion and infusion techniques, the equipment and supplies to be used, and the appropriate delivery, care, maintenance, and discontinuation of infusion therapy.

The role of the medical assistant will vary depending on the facility. Always be sure to check what the laws of their state are, because they relate to whether medical assistants can participate in intravenous (IV) or infusion therapy. All facilities should have a policy manual delineating exactly what role medical assistants will play in IV therapy. Even if the facility will not allow medical assistants to insert or remove IV lines, the medical assistant should be familiar with how to assess the patient for adverse complications of IV therapy.

As with any invasive procedure, it is very important to practice Standard Precautions when working with patients on IV therapy, because there is increased opportunity for infection transmission. Since the IV equipment dwells in the patient for a while, the patient may develop allergies to latex, medical tape, or even the iodine preparations. The medical assistant must be careful to change the sites and equipment according to office protocols and to assess each patient on IV therapy for signs and symptoms of infection.

INDICATIONS FOR INFUSION THERAPY

Even though infusion therapy places the patient at risk for infection and other complications, sometimes the intravenous route is ordered because it gives good, long-term access for infusion of medications, fluids, electrolytes, blood and blood products, and nutritional supplements. Additionally, a dehydrated patient may need fluid volume replacement and maintenance. One other advantage to having an indwelling line in the patient is that it facilitates access for multiple purposes such as phlebotomy, medication administration, as well as hydration.

ADVANTAGES OF INFUSION THERAPY

Intravenous (IV), or infusion, therapy is considered when other access methods are not as appropriate. Absorption is immediate. Distribution of medications is faster, which maximizes bioavailability. Medications can be injected immediately into the bloodstream, without waiting for gastrointestinal processing or absorption from muscle or fat. Fluids can be administered into the bloodstream for increased blood pressure, hydration, or electrolyte replenishment. Access to a vein in an emergency is immediate, as veins can sometimes collapse. Antidotes and medications to reduce the effects of other medications can be quickly administered. The unconscious patient or the patient who cannot swallow can benefit from the passive treatment through IV therapy. If the gastrointestinal system must be rested, as with inflammatory bowel disease, the patient can still be nourished. Intravenous therapy can maintain a tighter control of blood levels of electrolytes because it is not dependent on absorption through the gastrointestinal, integumentary, or musculoskeletal systems. The equipment dwells in the patient and does not have to
be inserted several times, which saves time for the medical assistant and usually is more comfortable for the patient.

**Disadvantages of Infusion Therapy**

Although there is usually only slight local discomfort from the IV therapy equipment, there are some more serious disadvantages to IV therapy. The fluid can lead fluid outside the vein into the surrounding tissue, known as infiltration. The needle can dislodge or the catheter can displace. A clot or thrombus can form, creating thrombosis. A solid, liquid, or gas can travel into the circulatory system, which is called an embolism. The patient can have an allergic or hypersensitivity reaction. Improper technique can cause transmission of hepatitis, HIV, and other diseases. The IV therapy can introduce microbes that can cause a systemic infection, known as sepsis. Too much fluid administered can cause fluid overload. Although medications can be administered rapidly by IV, this increases the possibility of overdose. Deposits can separate from a solution and create precipitation. Some medications are incompatible to be mixed with each other.

**Homeostasis, Fluids, and Electrolytes**

The body seeks stability, or homeostasis. Water accounts for 50% to 70% of adult body weight. Thus fluid loss can affect homeostasis. Water needs to be distributed both inside and outside the cells. Intravenous therapy can hydrate a dehydrated patient or add fluids in areas that need to have more fluid to maintain the delicate balance of homeostasis.

Chemicals with electrical charges, or electrolytes, comprise about 95% of the body’s solute molecules. Those with positive charges are called cations. Anions have negative charges. Some solutes, such as glucose, have no electrical charge. Electrolytes are very important in regulating electrical transmission of nerve messages and contraction of muscles, for example. Losing these chemicals can change the body’s homeostasis. Sometimes IV fluids contain electrolytes to replace those lost and to return the body to stability.

Water is the medium in which most chemical reactions occur. In the healthy patient, water is balanced among the fluid compartments. Fluids constantly move in and out of cells. Cell membranes facilitate the movement of fluid in and out of the cells. Some substances move passively into the cells, others need to use energy to push chemicals into the cell. For example, glucose must be pushed into a cell with the help of insulin. The movement of electrolytes creates an electrical charge. The electrical activity of the heart, for example, is created by electrolytes moving across nerves and muscles.

Fluids also help to control the acid-base balance within the body.

**Complications of IV Therapy**

The most common complication of IV therapy is pain and irritation at the site. Placing a catheter in a vein is irritating to the vein. A medical assistant needs to assess the reason for the pain.

Infiltration is the process in which a substance enters or infuses into another substance or a surrounding area. The actual leakage of material from a vessel into the surrounding tissue is called extravasation. When fluid leaks into the surrounding tissue, the resultant swelling causes pain. Plus the fluid is then not infusing into the vein. Infiltration can be caused by the puncture of the distal vein wall during venipuncture, the dislodgement of the catheter, the mechanical friction from the cannula, poorly taped IV devices, inappropriate selection of the site, wrong cannula size, infusion at too high a delivery rate, overmanipulation of the device, or irritating infusates. If the IV line infiltrates there will be pain at the insertion site, swelling and puffiness in the dependent part of the limb, skin that is taut and rigid, blanching and coolness of skin around the IV site, wetness on the dressing, and slowed infusion rate. With infiltration, infusion will continue when pressure is applied to the vein above the tip of the cannula. No backflow of blood into the IV tubing will occur when the clamp is fully opened and solution container is lowered or tubing is pinched above the cannula hub. Treating infiltration varies according to cause, so the medical assistant should check facility protocols or consult the physician for orders for patient care.

The catheter or needle can also become displaced. Since the patient will be able to move after insertion and tape can become wet from perspiration or contact with moisture, the cannula may become dislodged. It is very important to observe the site to be sure that the catheter and needle are still in the vein. Instruct the patient not to wet the tape at the IV site. If the catheter becomes displaced, a new line must be inserted in another site.

The equipment can also become occluded. Tubing that is kinked or bent does not infuse well. If the infusate runs out and is not quickly replaced, occlusion can occur because venous blood flows back into the cannula and tubing. A fibrin sheath can form over the tip of the cannula and disrupt the fluid flow. If you use a cannula that is too large for the vein, the tip of the catheter may press against the vein wall, thus disrupting or inhibiting the prescribed rate of infusion. If you do not frequently flush the line, occlusion can also occur. Signs and symptoms of occlusion are blood backing up from the cannula into IV tubing, pain at the infusion site, and slowed rate or stoping of the infusion. The medical assistant should follow office protocols to flush the line and check tubing to make sure it does not become kinked.

The cannula can irritate the vein and cause inflammation, or phlebitis. Bacteria or irritating solutions can also cause phlebitis. Signs and symptoms of phlebitis are redness at the site, pain or burning along the length of the
vein, edema at the site, warmth at the site, a vein that is hard, red, and cordlike, elevated patient temperature, and slowed infusion rate. Warm compresses are usually applied to the site after removing the IV. You may need to start another IV in the other arm.

Thrombophlebitis occurs when the vessel becomes inflamed because of a thrombus. Superficial thrombophlebitis can develop in subcutaneous vessels of the arms and legs used for IV therapy. If this condition is not noticed and acted on quickly, deep vein thrombosis (DVT) can develop. When the vessel becomes traumatized with phlebitis, the clotting process is initiated. When the thrombus forms, blood flow is slowed or stopped, leading to venous stasis. The clot will then continue to grow in the direction of the slow-moving blood. Legs are not usually used as sites in adults because of the increased risk of DVTs. When thrombophlebitis occurs, the infusion rate will be slowed or stopped, the patient may complain of an aching or burning sensation at the infusion site, the skin will be warm and red near the site, the infusion vein will feel cordlike, the patient’s temperature will increase, and the patient may complain of malaise. Also, the extremity will swell with edema, the patient may complain of a throbbing pain, the extremity will become blue and pale, and the arterial pulses will be hard to palpate.

The medical assistant must be sure to release the tourniquet immediately after cannulation before opening the flow control clamp on the IV tubing. If the tourniquet is not released immediately, excess pressure will build up distal to the tourniquet and rupture the vein. Immediately report thrombophlebitis to the physician or supervisor.

A hematoma is another possible complication. A hematoma is the accumulation of clotted blood in the tissue spaces. The traumatized vessel wall allows blood to escape into the surrounding area and ecchymosis, a black and blue skin discoloration, begins. This occurs because platelets signal the activation of the clotting mechanism and form fibrin from fibrinogen. Hematomas are usually formed because of poor venipuncture technique when the cannula passes through the distal vein wall or when infiltration occurs following cannulation of a vein. If you open the infusion before releasing the tourniquet, the vessel may rupture. Additionally, if the cannula is too large for the vein to accommodate it, the vessel might rupture. If the cannula is too long for the vein, it may cut the vessel at a junction where the vein merges with another portion of the vein. Some patients with fragile skin and veins cannot tolerate the pressure of a tight vein, and a hematoma results. If a medical assistant tries to start an IV near the site of a failed attempt, the other site might break open and bleed. A hematoma can also form when there is not adequate pressure following a blood sampling stick or the discontinuation of an infusion or heparin lock. Signs and symptoms of hematoma include ecchymosis, pain, swelling, hardness, inability to advance the cannula, and inability to flush the IV line.

Although hematoma formation cannot always be avoided, the incidence may be reduced with frequent assessment of the patient’s skin. You may need to alter the method of cannulation by inserting the cannula indirectly from the side and gently advancing the cannula into the vein. You may need to use a blood pressure cuff rather than a tourniquet or no tourniquet at all with patients with fragile veins. When you note the ecchymosis of a hematoma, the IV must be discontinued and a gauze pressure dressing applied. Once bleeding has stopped, elevate the extremity and apply warm, moist compresses.

A sudden, involuntary movement or contraction of a vessel wall, or venous spasm, can occur as a result of trauma or irritation from chemicals or temperature extremes. Infusates that may cause venous spasm include cold solutions, dextrose solutions with concentrations greater than 12.5%, vancomycin HCL, propofol (Diprivan), potassium chloride solutions, phenytoin (Dilantin), nafcillin sodium (Nafcil, Unipen), diazepam (Valium), and infusates with very high or low pH. A venous spasm will cause a slowed or stopped infusion rate, severe pain from the IV site which radiates up the extremity, blanching over the site, and redness over and around the site.

When you note a venous spasm, slow the infusion rate and notify the physician. Spasms may be prevented by infusing medications at room temperature and using a large vein and small gauge cannula. Blood should be warmed before a transfusion. Once the venous spasm occurs, reverse it by slowing the infusion rate and applying warm compresses to the site. The physician may order that irritating infusates be buffered by adding sodium bicarbonate, but consult a pharmacist or office policy manual to be sure that it is acceptable to the physician and safe for the patient.

The vessel can also collapse because of decreased circulation (as sometimes seen with dehydration or shock). The veins in the extremities constrict in an attempt to conserve blood in the vital organs. When the medical assistant exerts negative pressure on a vessel by aspiration of the IV line with a syringe, the vessel might collapse. Signs and symptoms of vessel collapse are the inability to see or feel the vein, loss of elasticity in the vessels, flaccid vessel, and reduced or stopped infusion flow. When the medical assistant is placing an IV, the vessel may lose elasticity and collapse. If the infusion is running and the vessel collapses, the fluid flow will stop. Based on the office protocol, the medical assistant will usually need to restart the IV line elsewhere and hydrate the patient. The patient’s head may need to be lowered and the legs elevated to promote venous return. This may create anxiety in the patient, so the medical assistant should soothe and comfort the patient as well as attending to the IV site.

Cellulitis, the diffuse inflammation and infection of cellular and subcutaneous connective tissue, occurs when bacteria spread to surrounding areas by way of watery seepage that extends along tissue spaces. Severe cellulitis can cause abscess formation and ulceration. Usually the
culprits are Staphylococcus and Streptococcus bacteria. The IV puncture site provides a portal of entry into the patient’s body. Placing an IV is an invasive procedure that circumvents the body’s natural defense, the skin. Signs and symptoms of cellulitis include tenderness, pain, warmth, edema, red streaking on the skin, induration, skin that looks like an orange peel, abscess formation with pus, vesicles, ulceration, fever, chills, and malaise. With cellulitis, the patient will complain of tenderness, pain, induration, and edema when pressure is applied. As with other complications, the medical assistant should discontinue the IV and restart an infusion elsewhere. The physician must be notified and the medical assistant may need to assist the physician with incision and drainage of the abscess. Edema will be reduced if the arm is elevated and cool compresses are applied and alternated with warm, moist compresses to promote circulation. Cellulitis is an example of complications that develop when hands are not washed and Standard Precautions are not followed. The physician will probably also order antibiotics, analgesics, and antipyretics.

The final local complication is nerve, tendon, ligament, and limb damage. Damage is usually caused by incorrectly inserting and placing the IV cannula, or by improperly securing and stabilizing the IV line after insertion. If the site selected is near a joint and the arm is not splinted, damage can occur. Extravasated solution, pressure of infiltrated infusate, anatomical displacement caused by hematomas, or cellulitis can severely damage the extremity. Signs and symptoms of limb damage include cyanosis, pallor, deformity, loss of sensation and movement, tingling, numbness, and paralysis.

A medical assistant should be very familiar with anatomy and physiology before starting an IV. Care should be taken to select a correct vein, stabilize the arm, and prevent cannula movement. The key prevention is to assess the site and limb frequently. Even if the medical assistant did not place the IV in the patient, any patient in the medical assistant’s care should be assessed frequently while on IV therapy. The patient’s complaints should be listened to attentively and the physician should be notified at the first sign of any local complication.

In addition to complications localized to the arm, infusion therapy can cause systemic complications. A contaminated site can introduce infection throughout the body. Signs and symptoms of infection include chills, fever, malaise, and elevated white blood cell count. However, the site may appear normal. Medical assistants must always wash their hands before inserting a site, prepare the site well, and secure the cannula well, as well as frequently assess the site for infection. Sepsis is the febrile disease process that results from microorganisms or their toxins circulating in the body. Signs and symptoms of sepsis are the same as infection, except that they include altered mental status, tachycardia, tachypnea, leukocytosis, hypotension, and flushing. Toxic shock syndrome includes malaise with generalized arthralgia and myalgia, vertigo, nausea, vomiting, edema, and desquamation of hands and feet. If a patient on IV therapy complains of fever and chills, the physician must be notified immediately. The toxins and fever will stimulate vasodilation and cause the patient to flush, with warm, dry skin. Blood pressure and cardiac output will drop and the body will conserve blood in the torso—resulting in extremities that are pale and cool. The patient will be thirsty and complain of low urinary output. Initially the body will attempt to compensate, but will then decompensate without intervention. Notify the physician immediately if you suspect sepsis, as oral fluids and antibiotic therapy should be ordered. The patient may need to be hospitalized.

Another systemic problem is medication and fluid interactions. Some drugs should not be mixed together in IV infusions. The medical assistant must always check drug references before combining medications in IV infusions, even if the physician has ordered them both. Notify the physician if the drug handbook indicates that the drugs are incompatible and do not give them together. Consult a pharmacist if the drug handbook does not list incompatible drugs.

If the IV infusion is infused too quickly, the patient can experience speed shock, a systemic reaction to the rapid infusion of medication or infusate. The body reacts to this intrusion by flushing, shock, or cardiac arrest. Signs and symptoms include flushing of the head and neck, feeling of apprehension, hypertension, chills, chest pain, dyspnea, pounding headache, loss of consciousness, and cardiac arrest. Notify the physician immediately with any of these indications. You may need to do CPR if cardiac arrest occurs.

Some patients are hypersensitive to certain antigens. If the patient has large volumes of IgE antibodies, he may be drug sensitive. An allergic reaction immediately begins in the body and anaphylaxis can result. Signs and symptoms of hypersensitivity reaction include facial and generalized edema, erythema along the veins, palpitations, hypotension, cardiac arrest, agitation, anxiety, confusion, disorientation, headache, paresthesias, vertigo, difficulty swallowing, gastric and intestinal cramping, nausea, vomiting, nasal congestion and runny nose, cough, sensation of throat tightness, mucous membrane edema, wheezing, bronchospasm, respiratory obstruction and arrest, itching, watery eyes, scratchy throat, ringing in the ears, buzzing sound and throbbing sensation in the ears, vertigo, numbness in fingers and toes, flushing, red flare, rash, IV site edema, and hives. It is important to prevent this complication by taking a thorough medical history. Ask the patient if any one in her family has had a hypersensitivity reaction to any medication. Be sure to ask the patient not only about prescription drugs, but also over-the-counter medication allergies. If you notice red streaking on the skin or any of the above symptoms, immediately notify the physician. The patient may be anxious or confused and need you to give comfort as well.
An embolism is solid, liquid, or gas that circulates in the body. It can lead to ischemia and tissue necrosis if not treated. A blood clot may become an embolism when blood flows past a thrombosis, or mechanical manipulation of a thrombotic area causes a thrombus to move. Air can enter the system through a break in the IV line or a line that runs dry. Always assess the integrity and flow of the IV line. The IV catheter can also break off and become an embolism. Patients with a pulmonary embolism will complain of dyspnea, tachypnea, cardiac arrhythmia, hypotension, diaphoresis, anxiety, substernal pressure, chest pain with inhalation and exhalation, pleural friction rub, and cough. An air embolism will also include signs and symptoms of extreme anxiety, light-headedness and confusion, nausea, substernal pain, tachypnea, hypotension, and cog wheel murmur. Since this is a very serious complication, notify the physician immediately if a patient experiences any of these symptoms.

**Intravenous Infusion Preparations**

A variety of preparations are available for IV therapy. The medical assistant must be very careful to select the preparation that the physician ordered. Infusates are classified as crystalloids, which form crystals, and colloids, which are glutinous and do not form true solutions. Crystalloids are usually electrolyte solutions that are isotonic, hypotonic, or hypertonic. Colloid infusions raise colloid osmotic pressure.

A variety of infusions are administered to patients to supplement caloric intake, provide water, promote renal output, and supply nutrients. Common hydrating solutions include sodium chloride 0.45%, dextrose 2 1/2% in 0.45% saline, dextrose 5% in water, dextrose 5% in 0.45% saline, dextrose 5% in 0.2% saline. Isotonic infusates, those equal to the normal fluids in the body, are 0.9% sodium chloride (NaCl), also called normal saline solution (NSS), and 5% dextrose. Hypotonic solutions have less serum osmolality by causing fluid to shift out of the blood into the cells. These would be used to hydrate dehydrated cells. For example, 2.5% dextrose and 0.45% NSS are hypotonic solutions. Hypertonic solutions cause fluid to shift out of the cells and into the blood. Hypertonic solutions include sodium chloride 0.45%, dextrose 2 1/2% in 0.45% saline, 3.0% NaCl or 10% dextrose in water. These would reduce edema or introduce sugar into the cells.

**Patient Preparation and Site Selection**

The wise medical assistant will review anatomy and physiology before beginning IV therapy if she is unsure of where to place the IV. If the medical assistant is not comfortable starting an IV, he should not do it; rather, ask another colleague to place the IV and request further training from the facility. There is significant risk to the patient if an IV is not inserted, assessed, or removed properly. The medical assistant has a duty to the patient to perform the procedure properly.

Placement of an IV is not simply a technical skill. You are placing the cannula in a patient. Usually the patient will be anxious and may need to be comforted with information and professional behavior. Make sure the client is physically comfortable. Be sure that you safely follow the six rights (patient, drug, dose, route, time, procedure). Research any drugs with which you are not familiar before administering them. Be careful not to mix incompatible drugs. Never give a medication or initiate IV therapy without consent from the patient or adult responsible for the patient, because to do so is assault and battery.

Place the IV in the best possible site for the patient. Use the distal veins in the upper extremities first. Palpate the veins prior to venipuncture, using the vein appropriate for the prescribed infusate. Use larger veins for irritating and hypertonic preparations. Place the IV in a site that will sustain the infusion for 48 to 72 hours. Remember that the arm may need to be stabilized with a board if the patient is active. Always use the smallest cannula that will deliver the prescribed infusate. Do not use irritated or sclerosed veins on locations of flexure. Do not use a tourniquet on fragile veins. Do not use an extremity that is on the side of the body where a radical mastectomy has been performed, that is impaired after a stroke, that is partially amputated, or that has third degree burns. Never use an arteriovenous fistula, shunt, or graft for peripheral infusion therapy—they are only for hemodialysis. Good sites include the metacarpals, cephalic, accessory cephalic, median cephalic (antecubital), basilic, median basilic, median cubital, or median antecubital (Figure G–1).

**Equipment and Supplies**

Although some facilities still use glass containers for IV fluid, the most popular way to infuse intravenous infusates is from plastic containers, flexible or semirigid. These plastic containers are then spiked and attached to infusate administration sets. Do not spike the container until you are ready to infuse it to the patient. Store containers away from light if possible. Once you spike the container, you will need to infuse the fluid or dispose of it, because it cannot be reused once spiked (Figure G–2).

Infusate is then administered through an administration set, which includes the following features: a piercing pin to spike the bag, a drip chamber to control the drip rate, a clamp to close or control the flow, an injection port to add medication, and a clamp to open or close the flow prior to the luer slip, which attaches to the cannula. The administration set is attached to the bag of infusate and the patient (Figure G–3).

Squeeze the drip chamber to induce the fluid to begin passing through the tubing. Macrodrip tubing will allow larger drops at a slower rate, but microdrip tubing will allow smaller drops to flow at a faster rate (Figures G–4 and G–5). Be sure to have the clamp closed or the fluid will pass quickly through the set and out on the floor.
FIGURE G–1  IV sites in the arm and upper torso

FIGURE G–2  Flexible IV containers (Courtesy of Baxter Healthcare Corporation)

FIGURE G–3  Basic administration set
Controlling the fluid passage, allow a few drops of fluid to flow out of the line into a trash can and clamp the flow off. The set is then primed to attach to the cannula in the patient (Figure G–6).

The drop factor is the number of drops needed to deliver 1 mL of fluid. It is based on the diameter of the administration tubing and is clearly marked on the administration set package. You will need to calculate the drop factor when determining the infusion rate, or a computerized pump may do it for you once you program the administration set’s drop factor into the computer.

Sometimes a secondary administration set is added to the basic set to piggyback medication into the IV line. For example, an antibiotic could be run through the line for half an hour or an hour, followed by the normal saline solution for another few hours. Blood is always hung with normal saline solution in the main line, so that the blood flow can be stopped immediately and normal saline solution infused if a transfusion reaction occurs. The secondary set is always hung higher than the long-term set, so that it will infuse first as a result of increased gravitational pull. A check valve (also called one-way or back-check valve) prevents retrograde solution flow (Figure G–7).

Volume-control administration sets give limited volumes of solution, and are especially used in pediatric infusion or when very small amounts of infusate are needed. Sometimes a computer that programs small amounts through the volume-control sets is used for quality assurance (Figure G–8).

Accessory devices for use with IV administration sets include filters, extension sets, adapters, and connectors. Filters prevent small pieces of plastic from entering the line. Extension sets allow more line so the patient can be further from the line and not inconvenienced. Adapters help the line to adapt to the cannula or other equipment. Stopcocks control the directional flow of the infusate through manipulating the direction-regulating valve. These allow for 2 to 3 lines of fluid to the patient, and provide a means to route various infusates towards the patient.

Ports and connectors allow the medical assistant to add medications directly into the line or to connect another line immediately to the main line. In an emergency, they offer immediate access to the vein (Figure G–9).
FIGURE G–7  Check valve and its mechanics of function

FIGURE G–8  Volume-control administration set (Courtesy of Baxter Healthcare Corporation)
1. The InterLink™ Threaded Lock Cannula is a streamlined locking device for securing I.V. catheter connections.

2. Insert InterLink™ Threaded Lock Cannula into InterLink™ injection site.

3. Rotate InterLink™ Threaded Lock Cannula clockwise until securely engaged.

4. The Threaded Lock Cannula provides a closed system that minimizes touch contamination.

1. The InterLink™ Lever Lock Cannula is an easy-to-use device for securing I.V. connections.

2. Grasp levers and insert the InterLink™ Lever Lock Cannula into InterLink™ injection site.

3. Release levers to lock cannula into place.

4. The Lever Lock Cannula rests comfortably against patient’s skin.

1. The InterLink™ Set allows access to the I.V. line without a needle.

2. The InterLink™ Y-Lock inserts and twists into the InterLink™ Y-Site for a safe and secure connection.

3. The InterLink™ Lever Lock Cannula is an easy-to-use device for securing I.V. connections.

4. An InterLink™ Cannula attached to a syringe is ideal for injecting bolus dose medications into the InterLink™ Y-Site.
The line is purged of air down to the final clamp and the medical assistant turns focus to the patient. First the skin must be prepared with a 2% chlorhexidine-based preparation, iodophor, tincture of iodine, or 70% alcohol. The medical assistant can then insert straight or winged needles into the patient’s vein (Figure G–10). After the line is primed by purging the air, the medical assistant slips the cannula forward in the vein, removes the needle, and attaches the primed line.

Usually IV lines are attached to poles to assure that the pull of gravity infuses the fluid. The IV lines are usually on wheels to support patient ambulation, as necessary.

New technologies are available to assist in phlebotomy. A venoscope illuminator can be used to illuminate veins that are difficult to see (Figure G–11).

Prepackaged kits are available to start IVs. They are made with or without peripheral venous access devices and include tourniquet, antiseptic skin prep, gauze, tape, and a dressing (Figure G–12).

Electronic infusion control devices are now available to aid the medical assistant in supporting the patient. They are programmable with information such as rate of infusion, drop factor of administration set, start time, end time, etc. Although machines do malfunction, they allow

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**Figure G–10** Interlink™ needleless system (continued) (Courtesy of Becton, Dickinson and Company)
for an organized and usually reliable infusion of fluids into the client. The medical assistant will need to run the tubing through the computer, program the data, and occasionally monitor the equipment, but this technology frees the medical assistant to pay more attention to the patient (Figure G–13).

Pumps function to infuse medication at certain times or a certain rate and are ideal for ambulatory infusion of pain medications. A syringe of medication is loaded and can be programmed to deliver at specific intervals or when requested by the patient—up to a certain limit (Figure G–14).

Patient-controlled analgesia (PCA) is a system that enables the patient to self-administer and regulate the delivery of medication for pain control on an “as needed” (prn) basis. The medical assistant must assure that the patient is mentally competent to use this device correctly. The major advantage of this system is that a bolus of anal-
gesic is given to the patient when the patient presses a button. This encourages the patient to access medication before the pain becomes too severe, and more medication might be needed. Since the patient is not taking the medication orally, the patient does not have to wait for the gastrointestinal system to absorb, metabolize, and distribute the medication. Psychologically, it gives the patient more control over the body. Much less medication is used by the patient when immediate relief is possible. Since home infusion is becoming more popular, there are numerous models of PCA pumps—with a variety of size, weight, volume delivery, and portability. Some can deliver continuous as well as bolus, intermittent, and taper-down dosages. The ones in ambulatory facilities are usually larger and more complex than the one the patient uses at home.

The medical assistant is responsible for knowing the analgesic pharmacokinetics and equianalgesic dosing, contraindications, side effects, anticipated outcome, and appropriate administration modalities. Medical assistants must document that they have taught the patient how to use the pump and key information about the medication before releasing the patient.

One of the newest innovations to facilitate home infusion therapy is the disposable infusion device. It is a closed-system mechanism that has preattached administration tubings and air elimination filters. The medical assistant would self-prime and program the infusion device to deliver a specified volume of infusate at predetermined times. When the patient has received all the infusate, it can be disposed of. It can be costly to the patient, but many patients prefer them to the usual ambulatory infusion devices because they are relatively simple to use. Figure G–15 shows the simplicity of the disposable system.

The medical assistant must be sure to document, not only in the patient chart, but also on the label, what the infusate is and what time it was started. Always be sure to write clearly and take care not to smear the information (Figure G–16).

**Delivery, Care, Maintenance, and Discontinuation**

The medical assistant should not attempt to start an IV line without training. Some courses are available at local colleges, but usually the medical assistant is trained by a more experienced professional in the facility where the medical assistant is employed. Ideally, the medical assistant should practice first on a training device and then perform a number of supervised sticks before being allowed to attach an IV line alone. Sometimes the facility will permit a medical assistant to lay out supplies and prime the tubing, but not do the phlebotomy. Medical assistants should be sure to check with the state and the facility to see what medical assistants are permitted to do where they work.

As with the administration of any medication, always check to be sure that you have all the information you need from the physician. The order for any infusion must include that date and time of day, infusate name, route of administration, volume to be infused, dosage of infusate, rate of infusion, duration of infusion, name of patient, and physician’s signature. Be sure all this information is documented correctly in the patient record. Do not use abbreviations because of the increased chance of errors.

Many infusate names look similar, so be sure to get the correct bag of medication. Remember not only to get the correct drug name, but also the correct dosage. For example, 5% dextrose is not the same as 10% dextrose.

Before any invasive procedure, you must wash your hands. This is especially true before inserting a venous access device. Many infections could be prevented if medical assistants were faithful in always washing hands before inserting IVs.

The tourniquet allows for pooling of blood distal to the strapping and this facilitates the location of veins. However, it increases the blood pressure distal to it—which gives the patient some discomfort if left on too long. The tourniquet can also provide a reservoir for microbes. If you are not using disposable tourniquets, be sure to disinfect them between patient use. Latex tourniquets can sensitize patients to latex allergies, and should never be used with latex-allergic patients. Never apply a tourniquet so tightly that it obstructs arterial flow, nor leave it on longer than 4 to 6 minutes. Nerve damage can occur if you place the tourniquet on the patient for too long or wrap it too tightly. You should always be able to palpate a distal pulse.

To facilitate venous access, lower the extremity and allow gravity to aid in pulling the blood downwards. Asking the patient to make a fist also distends the veins.

**FIGURE G–15** Eclipse™ elastometric infusion system [Courtesy of I-FLOW Corporation]
You may also gently stroke the skin over the veins, especially if you rub with alcohol, to enhance friction. Some medical assistants tap the vein using the thumb and index finger to engorge the vein with blood. Applying warm compresses over the vein also increases blood flow. If applying one tourniquet does not distend the vein, try using several, placing them 2 to 3 inches apart. The transilluminator is also helpful (Figure G–12). Sometimes patient hair impedes the visualization of veins. Do not shave the hair, as this increases the chance of infection. Instead, gently cut it close to the skin.

Be especially cautious with patients who are receiving anticoagulation therapy. They are prone to bleed for extended periods of time. Avoid using tourniquets if possible, as these patients bruise easily. Also, be careful not to push as hard with antimicrobial preparations.

Patients with irritated, burned, or diseased skin are more vulnerable to trauma. Older patients and patients receiving corticosteroid therapy have delicate veins, so try not to use a tourniquet with these patients.

Patients with peripheral edema are sometimes difficult to obtain venous access on. Even if you are successful in inserting the cannula, the vessel may collapse from the oncotic pressure created by the edema. If an infiltration occurs, compartment syndrome can result. It is often difficult to visualize veins through the edema, but applying digital pressure can displace tissue pressure temporarily and allow for visualization.

Obese patients may have veins that are easy to see or deeply imbedded, depending on how the adipose tissue displaces them. Multiple tourniquets may be needed for successful venipuncture.

Always check for allergies to latex, tape, and iodine, and use caution with patients who may have been exposed repeatedly to these products. Latex reactions are more common in women, asthmatics, persons with histories of allergies, persons with occupational exposure to latex, persons with allergies to fruits and vegetables, patients who frequently are catheterized, and persons with histories of genitourinary or intra-abdominal surgeries. Use non-latex products, paper tape, and other antibacterial products on patients allergic to latex, tape, and iodine respectively.

Before initiating infusion therapy, assure that you have all the necessary equipment. Check the physician order for the correct infusate. Obtain the correct style of admin-
17. Continue to observe the patient.
15. Wash your hands.
14. Remove gloves.
12. Cover with a transparent dressing.
11. Dispose of the needle in a sharps container.
10. Position. Prepare for IV therapy as follows:
9. Attach the primed line to the cannula.
8. Introduce the cannula further into the patient’s vein and remove the needle.
7. Access the veins according to facility protocols.
6. Introduce the cannula further into the patient’s vein and remove the needle.
5. Apply the tourniquet.
4. Select a vein.
3. Don gloves.
2. Wash your hands well.
1. Remove gloves.

Although the facility may not allow you to start IV therapy, they may encourage you to discontinue peripheral infusion lines. To do so, have gauze ready to apply pressure. Assure you have the correct patient. Wash your hands and don gloves. Gently remove the cannula and apply pressure to the patient’s site. When the patient’s bleeding has stopped, apply a sterile bandage to the site. Dispose of the IV line according to the facility policy.

When ordered to flush an indwelling IV port, assure you have the correct patient. Wash your hands. Insert a syringe into the port and gently flush with saline, then the medication ordered, then the saline. Follow the facility’s protocol for flushing lines.

Older Patients

The term older patients is generally used to mean people 65 years of age or older, however, all humans begin to decline with age. Those over 85 may be especially fragile or frail.

Older patient are frequently prescribed IV therapy—

Older patient are frequently prescribed IV therapy—

Older patients are prone to lower extremity edema, orthostatic hypotension, thrombosis, and venous stasis. Decreased mobility in the chest wall of the older patient along with decreased vital capacity and increased residual volume make the older patient especially vulnerable to respiratory infections and pneumonia. Teach older patients to get influenza immunizations and to avoid respiratory irritants. Select veins for IV therapy which allow for maximum mobility and encourage movement. Monitor them closely for fluid overload.

The renal system deteriorates with aging. Older patients at risk for fluid imbalance must monitor their weight. Monitor older patients for drug toxicity and signs of excess fluid volume.

Older people experience decreased musculoskeletal strength. It may take them longer to move from place to place. Arthritis may make mobility painful. When initiating IV therapy in the older patient, consider the least restrictive device to encourage mobility.

The thinning of the skin, loss of subcutaneous fat, and decreased sweat glands are common in the older patient. Use gentle technique and avoid irritating tape. Practice meticulous infection control techniques.

The immune system is less effective in the older patient. Strictly adhere to infection control standards and monitor for fever.

Sense organs are less effective in many of the older patients. Teach older patients to be careful about not applying hot or cool compresses if sensory impaired.
Assure that those who wear glasses have access to them during the therapy.

Less subtle changes are changes in the cognition of the older patient. Be sure that older patients can use home infusion devices before they leave the office.

**The Pediatric Patient**

Children are not just little adults. They have a more rapid basal metabolic rate. The body surface area of the infant or young child is proportionately greater than that of an older child or adult. The small child has immature liver and kidney function. Most importantly of all, perhaps, is that children have special psychosocial needs.

Children are ordered IV therapy for dehydration, gastrointestinal problems, and acid-base imbalances. Medications are usually calculated depending on the child’s weight, not age. Care must be taken not to give an adult dose of IV therapy to a child.

Children present a unique safety risk. While an adult may stay seated during IV therapy, a child may want to run around the office dragging the IV pole along. Careful education and instruction is necessary to assure cooperation of the child. Especially young children may need to be monitored by a medical assistant or the child’s parent during IV therapy.

Although an adult may be an enthusiastic participant to IV therapy, the child may be frightened of needles or other equipment. Spend time instructing the child on the purpose and procedure of the IV therapy before inserting any needles into the child.

**Summary**

The medical assistant working in an outpatient facility may be asked to lay out equipment, initiate an IV therapy, monitor a patient on IV therapy, discontinue IV therapy, or teach a patient about IV therapy. It is crucial that medical assistants check state laws and facility protocol to be sure that these tasks are in their role delineation. If asked to lay out equipment, the medical assistant should assure they have the correct drug and dosage and all the equipment necessary for the person initiating IV therapy. If inserting an IV, medical assistants must practice meticulous infection control techniques and be sure they are competent in the procedure before doing it on a patient. Medical assistants should review the signs and symptoms of complications when monitoring a patient on IV therapy. If asked to discontinue IV therapy, medical assistants should be sure to apply pressure until the bleeding stops and use Standard Precautions. To teach a patient about IV therapy, medical assistants must be familiar with the reasons for therapy and the procedure itself, and know about the equipment the patient will use. Most of all, medical assistants must remember that the patient is a human with psychosocial needs. Medical assistants should be sure the educate and comfort the patient, taking into account the special needs of older patients and children.
INTRODUCTION
During the presidency of Bill Clinton, the expenses of health care were at the forefront of issues that Congress continued to tackle. Americans were concerned about the escalating costs associated with health care. Change was necessary; simplification was desperately needed. In August of 1996, President Bill Clinton signed into effect the Health Insurance Portability and Accountability Act (HIPAA). The act would take several years to put into practice with quite a few different time lines for implementation. The act was created to protect the privacy of every patient’s personal information related to health care, to assist in curbing fraud and abuse, as well as to simplify the processes involved in the processing of claims, and to address the loss of health insurance when switching from one job to another. Medical assistants will be directly involved with patients and their protected health information on many levels. It is the medical assistant’s responsibility to ensure that this information is protected and safeguarded against anyone having access that does not have permission to do so.

PROVISIONS OF HIPAA
There are two provisions to the act: Title I relates to insurance reform and Title II is regarding administrative simplification. Title II is the larger portion of the act.

INSURANCE REFORM

Insurance Portability
Exactly what does it mean to say that insurance has portability? If something is portable, it can be moved or taken. Thanks to HIPAA legislation, that is exactly what can now happen with someone’s ability to be insured. Many Americans were losing their health insurability when they were changing from one job to another. The legislation allows for people to move from one job to another and maintain their coverage along the way.

Group Health Plan Provisions
HIPAA put into place guidelines for group health plans in relation to renewing policies and preexisting clauses. A group health plan is defined as either an employer sponsored health plan or a self-insured health plan. Group health plans are required to follow HIPAA regulations, and the processing of their claims fall under the same guidelines as other health plans.

Prior to the implementation of HIPAA, workers in the United States were running into problems with gaps in insurance coverage when they would switch from one job to another. Workers were being faced with extremely long timelines for preexisting conditions. A preexisting condition is a condition that a patient sought or received care for prior to their new insurance coverage. Patients were facing high medical expenses while waiting for the preexisting condition time frames to elapse so that their new coverage would actually provide an insurance benefit to help offset the expenses of their health care. HIPAA established much shorter timelines for preexisting conditions. Preexisting clauses with the new coverage could be waived because the patient was previously insured.

Now workers are able to switch jobs with the security that they will have coverage through their new employer (if offered) with their new health insurance without penalty. Insurers are no longer able to turn an employee down from participating in new coverage due to an existing health condition.

APPENDIX

HIPAA for Medical Assistants
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It is common that an employee may be required to provide a certificate of insurability. This is obtained from their previous insurance carrier and then shown to the new carrier to prove they had insurance coverage within the last year.

**Administrative Simplification**

This section of the act refers to privacy and security requirements, and electronic transaction and code set standards. The purpose of the act is to provide us guidelines about what type of information must be secured and protected; and to encourage health care providers to develop plans for maintaining the security of the records. The electronic transaction and code set portion of the act identifies what types of specific code sets must be used in order to simplify the billing process.

Medical assistants need to be mindful of costs surrounding the care patients receive as well as the expenses physicians incur in running the practice. Sending claims hard copy (paper) is a great deal costlier to the practitioner than sending the claims through electronic data interchange (EDI).

The administrative simplification portion of HIPAA has many facets. The process of providing care to the patients and billing their insurance company for reimbursement for the services rendered was in need of specific structure and guidelines that could be applied to all carriers. Prior to HIPAA, insurance companies could create their own billing codes for submission of claims to their company. These codes were referred to as “local codes.” If each insurance company were to follow suit, this would make filing claims for reimbursement a nightmare. To simplify this process HIPAA requires that claims are filed in specific formats when submitted electronically, using specific codes sets referred to as standard medical and administrative code sets.

Current Procedural Terminology (CPT) and International Classification of Diseases (ICD) are two examples of code sets that assist us in simplifying the claims filing process. The language used in these two coding references is recognized by insurance companies nationwide.

In order to file claims on behalf of patients, the medical assistant will need to collect demographic information from the patient. This information is considered protected health information (PHI). Listed below are some examples of PHI:

1. Name
2. Date of birth
3. Address
4. Telephone numbers
5. Diagnosis
6. Treatment
7. Driver’s license number
8. Social Security number

This information may be collected when patients present for their first appointment by having the patients complete the new patient information packet that will become part of their chart; or the medical assistant may collect this information from the patient face-to-face in a private area away from other patients and/or visitors. Gathering the information in an area where no one can overhear the conversation is one way to protect the PHI.

Some practices elect to obtain some of the demographic information when they are scheduling the initial appointment and are speaking with the patient over the telephone. Medical assistants in this case will need to be cautious when repeating this information back to the patient for verification, ensuring privacy.

Now that there is such focus on identity theft and protecting the privacy of patients’ personal information, many health plans are moving away from using the patient’s Social Security number as the patient’s identification number. In the past, the primary identification number used by insurance carriers was the patient’s Social Security number. Several health plans are working through totally revising the identification numbers of their insureds and issuing new identification cards to move away from using the Social Security number. The health plans are using different combinations of letters and numbers to identify their insureds.

**Notice of Privacy Practices**

The act requires that patients be supplied with a document informing them of their rights under the act as well as how their health information will be protected. This document is titled Notice of Privacy Practices (NPP). As of April 14, 2003, all patients visiting practitioners are to be informed of the NPP. This same document must be posted in offices in patient view, such as in the waiting room.

The patient’s signature must be obtained when they are supplied with the Notice of Privacy Practices. If the patient refuses to sign acknowledging receipt of the notice, it is a good idea to have another employee witness this. Document this information in the patient’s medical record.

If you have patients unable to write their name, the patients can mark an “X” where the signature is indicated on the paperwork. The “X” acts as their signature. Another employee should witness this action also.

**Privacy Rule**

The privacy rule went into effect on April 14, 2003. As part of the privacy ruling, employers have to be certain to train their employees about following the company’s privacy practices. Each practice or company is required to have a delegated person to be the privacy officer. The privacy officer can be any employee in the practice. This individual may have other responsibilities throughout the
course of a normal business day. Very large group practices may have a person employed full time in this role. Part of the privacy officer’s role is to accept any complaints made by anyone about possible privacy violations. This person may also be responsible for seeing that the complaints are addressed and changing protocols or providing for additional training for the staff so that the leak in privacy information does not occur again.

**Security Rule**

As with the privacy rule, the security portion of the act also requires that there be an individual named as the security officer. Someone could hold both the title of privacy and security officer. Having a plan in place for employees to learn and follow protocols associated with maintaining the security of patient’s information is necessary. Computers hold a great deal of information about the patient, such as diagnosis, services provided, x-ray and/or MRI images, tests the patients are scheduled for, lab work results, and demographic information. Health care workers are to view only the portions of patients’ medical records that pertain to the services being provided.

Security processes can include allowing employees differing levels of access to computer records. Examples of different levels of access are the receptionist, scheduler, secretary, lab technician, and the medical records technician.

All employees with computer access should be guided to set up passwords with a combination of numbers and upper and lower case letters at least six characters in length. Keeping this password protected and known only to the user is important in maintaining the integrity of the system. Passwords may need to be changed periodically to safeguard the system.

Protecting the information displayed on monitors, the soft copy, is part of addressing a security issue. The only person who should be able to view information on the monitor is the person using it for the business purpose of serving the patient. This can be accomplished by placing a screen blocker over the monitor. The blocker will do just as its name implies: block out viewing access for anyone who is not directly in front of the monitor.

Firewalls should be used in software programs to protect the integrity of the system. Encrypted data will keep people from being able to access data that is transmitted electronically.

The safeguards for the privacy ruling had to be in place by April 14, 2003. The actual compliance date for the security standards was April 21, 2005.

**Front Desk**

When employees are working at the front desk and leaving messages on voice mails or speaking directly with someone on the other end of the telephone line, they have to be aware of who else can hear what they are saying. As soon as two elements of PHI are used in the same conversation, information may have been disclosed that someone in earshot could use to identify the patient.

Offices have had to restructure what type of business can be performed at the front desk with the implementation of HIPAA. Restructuring of employee responsibilities might have occurred in order to protect PHI. Prior to HIPAA, for example, prescription refills may have been called in by the medical assistant from the front desk. Today that would not be acceptable if anyone in the reception and or waiting area could overhear what is being said. This is an example of a process that needed to be changed in order to be HIPAA compliant.

Appointments that are scheduled over the telephone require several elements of PHI. It would be difficult to schedule these appointments from the front desk and remain in HIPAA compliance. The same is true when scheduling an existing patient with a specialist, for a surgery, or testing at another facility.

Many practices utilize sign-in sheets for patients to complete upon their arrival to their appointment. Sign-in sheets are permitted as long as the requested information is within HIPAA compliance. The sign-in sheet can reflect the patient’s first and last name, their appointment time, and arrival time. The sign-in sheet should not reflect additional information such as the reason for the appointment, what type of insurance the patients have, or their telephone numbers. This information is too personal and should not be requested on the sign-in sheet. Your practice may elect to have the patient sign in on a sticker or post-it note. The sticker would be applied to another sheet and stored for future reference if needed. This method of acknowledging the patient’s arrival would keep all patient information out of the sight of other patients.

**Rooming Patients**

To retrieve patients for their appointment, you are able to call patients by their first and last names. Some practices may elect to call patients by their last names only, such as, “Mr. Velasquez” or “Ms. Ying.” At one point there was concern that health care providers might have to issue patients a number upon signing in to later call out to retrieve the patient; somewhat like you see at the deli. These types of restrictions would make it difficult to conduct day to day business. That is not the intent of HIPAA and thankfully health care providers are not held to such stringent specifications. During orientation and or training of new employees, employers should cover the practice policy on how to identify patients from the waiting area.

It may be practice policy to place patient charts on the outside of the door for easy access for the physician. The chart must be placed with the patient’s name and any
other personal information facing the door, not facing the hallway. This will protect the chart information from being viewed by anyone as they pass by.

Appointment Reminders
Practices are able to send appointment reminder post cards to patients as long as the information on the post card does not disclose too much information. Reminder phone calls are still the method of choice by many practices for reminding patients of upcoming appointments; however, messages must be left only if the patient has indicated in writing that this is acceptable. The practice’s new patient packet should cover the subject of leaving messages on voice mail, whether it is at the home number, a cell phone, or a voice mail at work. If the practice’s new patient information HIPAA paperwork does not specifically address leaving messages about upcoming appointments, the medical assistant could leave a very short message stating, “Hello, this is Tamika calling from Dr. Miller’s office. Please call us upon receiving this message at 555-1313.” This type of message gives no indication as to the reason for the call; therefore no information is divulged unnecessarily.

Releasing Patient Information to Parties Outside of the Practice/Office
More than likely, at one point or another, information contained in the patient chart may be requested by another party. If the patient is referred to a specialist, applies for life insurance, or needs to have his or her records transferred to a new physician located in a new area where the patient is moving to, appropriate release of information forms must be signed and dated by the patient or a legal guardian.

There are certain situations where a signed authorization may not be needed, in relation to following HIPAA guidelines, for the medical assistant to release information from the patient chart. Workers’ Compensation and disability claims do not fall under the act; therefore a patient signature is not needed in order to release information related to either of these scenarios. Medical assistants still need to use their best judgment and release only what was requested in these two situations.

Information may be disclosed as it relates to Treatment, Payment Operations (TPO) purposes. Patient names and protected health information are released to the patient’s insurance company when claims are submitted for reimbursement. This type of release is approved under the HIPAA guidelines.

Required Disclosures
There are two types of disclosures that are required by the HIPAA, disclosure to the U.S. Department of Health and Human Services (HHS) and disclosures to the patient as long as the practitioner does not believe disclosure to the patient would cause them harm. If the HHS requests to see protected health information, health care providers are required to supply the data, making sure to ask for identification from the HHS representative prior to releasing anything.

Patients are also able to request to see their entire chart. Health care providers should set up a mutually convenient time for the patient to review his record. The patient should not be left alone to view this information. There will be medical terms, abbreviations, and other data in the chart that the patient may need to have explained to him. If the patient disagrees with anything documented in the chart, HIPAA allows her to refute what is written. Patients must present a complaint or request for change in writing. Practitioners are not required to make the requested change; however, they are required to note in the record the patient’s request for the change.

All disclosures that are made should be documented in the patient’s chart. The medical assistant could be asked by patients at some point to inform them of all disclosures that have been made. The record should reflect the following for every disclosure:

1. Date of disclosure
2. Name and address of the party the information was released to
3. Name and title of the person who made the disclosure

Creating a disclosure log to hold this information all in one place in the chart is an efficient way to retrieve information about disclosures quickly.

HIPAA Violations
What happens if there are violations to the HIPAA? Is anyone watching? The HHS has given the Office of Civil Rights the authority of enforcement of the Privacy Rule. The Centers for Medicare and Medicaid Services (CMS) is the authority in charge of administration simplification.

There are civil and criminal penalties for those who do not follow the rules. The civil penalties for violation of privacy rules range from $100 for each offense up to $25,000 in one year.

The criminal penalties range from $50,000 up to $250,000 per offense with prison time. The most serious offenses would be selling patient information for profit or malicious harm.

Anyone can report possible violation. Usually a patient will voice a complaint to the office first. This complaint should go the privacy and security officer of the practice. Every complaint should be taken seriously, even if it seems minor. Make sure the patient realizes that the office takes his complaint seriously. It would be wise to ask the patient to put the complaint in writing after hearing what the complaint is. If the patient elects to take the complaint to the next level, it would need to be put in writing, hard copy or electronically, and sent to the Office of Civil Rights.
Federal Laws versus State Laws

HIPAA, a federal law, standards are the guidelines health care providers are required to follow; however, there could be instances where a state law is more stringent than the federal law. If this is the case, health care providers are bound by the law that provides the greatest protection to patients and their identifiable information.

Public health laws are a separate subject from HIPAA. There is some medical information that is available through public domain as well. Certain conditions or situations must be reported to public health officials, including child and elderly abuse, births and deaths, and communicable diseases.

Working with Business Associates

Other businesses or individuals may contribute to providing a full spectrum of service to your patients. These individuals are not employed by practitioners; however, they may need access to the patient’s records. Some examples of these types of businesses or individuals are:

- Transcriptionists
- Medical record copying services
- Law firms
- Accountants
- Consultants

Transcriptionists, for example, will hear very detailed information about a patient while transcribing reports. They will hear the patient’s history, diagnosis, plan of treatment, scheduled tests with outcomes, etc. This is privileged information and needs to remain protected.

A medical record copying service might need access to a chart. The copy service will see many details from the medical record. The service has to agree to keep this information confidential.

To maintain confidentiality with these third parties, many practices create Business Associate Agreements (BAA). The BAA should outline what the practice expects from the business associate: how they will use the protected health information and that the practice expects them to adhere to HIPAA guidelines. The contract should also outline recourse that the covered entity may impose if the BAA intentionally or unintentionally releases information.

Electronic Transactions

Covered entities have to be certain to follow HIPAA guidelines. A covered entity is any health plan, clearinghouse, facility, or health care provider who transmits electronic information in connection with a HIPAA transaction. Examples of electronic transactions include transmitting a health care claim, checking for eligibility or benefits, whether as an inquiry or as a response to an inquiry, performing a claims status check, providing benefit enrollment information, offering claims payment or remittance advice or executing a premium payment.

The covered entity is affected by the security standards of HIPAA and needs to be in compliance with the regulations for performing these electronic functions.

Verifying Patient Eligibility

As technology advances offices are finding ways to improve efficiency. It is a real time saver to check eligibility electronically instead of calling the insurance company. Electronic requests may be made to verify several patients’ eligibility at once versus checking one patient at a time. Placing an eligibility request electronically is an X12 270 transaction. The response received back is an X12 271. The time saved by performing these functions electronically will free up the medical assistant’s time for other responsibilities.

Electronic Claim Format X12N 837

To send claims electronically, the claims must be in X12N 837 format. This is often referred to as “the 837,” meaning an electronic claim. The 837 transaction is also used for coordination of benefits (COB) communication. When a paper claim is submitted it is often referred to as a “hard copy” claim. Medicare claims are sent in X12N Version 4010a format. Sending clean claims electronically is the quickest way to get a claim processed for payment. Payment may be received in as little as seven days with electronic submission and Electronic Remittance Advice. As of July 1, 2004, any electronic claims sent to Medicare that do not meet HIPAA standards are held for 27 days after receipt of the claim before processing begins. Electronically submitted HIPAA compliant claims are processed in as little as 13 days. Financial incentive is tied to being compliant. On October 1, 2005, all claims submitted to Medicare, whether as a primary or secondary payer, are required to be submitted electronically and within HIPAA compliance. Practices that continue to submit paper claims after this date will receive a letter from the Centers for Medicare and Medicaid Services informing them of their noncompliance with the administrative simplification act. The letter also reflects that the paper claims will not be processed. . . period.

Requesting Claims Status

It would be great if each claim filed for reimbursement went through the claims adjudication process without ever having to be touched a second time; however, that is not practical. If payment or word on the status of a claim is not received in a timely way, a claims status request may be filed, known as the 276, and the response is the 277. Filing a 276 and receiving the 277 are additional examples of electronic functions that will save time in
comparison to using the telephone to contact payers to gather this information.

**Electronic Remittance Advice**

Receiving payment information via electronic means is becoming common as more and more insurance companies are creating the mechanisms to offer this service to their providers and as software vendors update their program software. To receive electronic remittance advices (ERA) would be to receive “the X12 835.” This is the electronic version of the explanation of benefits. Posting of payments and adjustments through ERA speeds up the payment posting process. Many processing hours are saved by allowing the system to do the posting electronically versus manually. The only manual posting that takes place is for posting of exceptions. Exceptions are line items that would not post electronically. For instance Medicare does not accept the venipuncture code 36415; instead Medicare wants the service submitted with the HCPCS code G0001. This may need to be posted manually.

An ERA reflects a great deal of protected health information. Patients should be assured that PHI is protected from being improperly used or being placed in the hands of individuals who have no right to it through the security measures of the HIPAA act. The only way this can be guaranteed is to require payers to transmit ERAs in the “835” format.

The federal government would like to see health care providers move toward accepting ERAs from any payer able to produce them. This is another move toward a paperless office.

**Why Use Numbers to Identify the Different Types of Electronic Transactions?**

Abbreviations, acronyms, and numbers are used throughout medical terminology to speed up the process of one function or another. Complete sentences can almost be formed using acronyms, abbreviations, and numbers. Once you are in the field practicing in your profession you will be a pro at using these same terms, that might seem confusing right now, to shorten your sentences and accomplish as much as possible in as little time as possible.

Here is a recap to the electronic transactions and their associated American National Standards Institute (ANSI) formats:

- 270 / 271 Placing an eligibility request and receiving the response to your request
- 276 / 277 Placing a claims status request and receiving the response to your request
- 835 The Remittance Advice
- 837 Sending the claim and/or COB information

**National Provider Identification Numbers**

Many large insurance companies assign individual provider identification numbers (PINs) to physicians that become participating with their contracts. The PINs can be a combination of a physician’s Social Security number and either a prefix or suffix or any combination of numbers and letters in a format that the company selects. The numbers identify the physician with the health plan and the specific contract or reimbursement schedule the physician has agreed to. Often times the prefix may identify the provider’s specialty. The payers require the PINs to be submitted with each claim. It can be burdensome to a practice keeping all of the numbers straight. It also can take a great deal of time to build the provider plan tables in the practice management system. To simplify this process National Provider Identification (NPIs) numbers are going to be assigned to providers. Providers were able to begin to apply for the numbers in May of 2005. They are required to have an NPI as of May of 2007. One number to use for identification purposes with all health plans is the goal. NPIs will be used by physicians, physician assistants, speech, physical, and occupational therapists, certified nurse practitioners, and dentists. All providers that plan to bill for services provided to patients will need to apply for an NPI. Application can be made online or through hard copy applications.