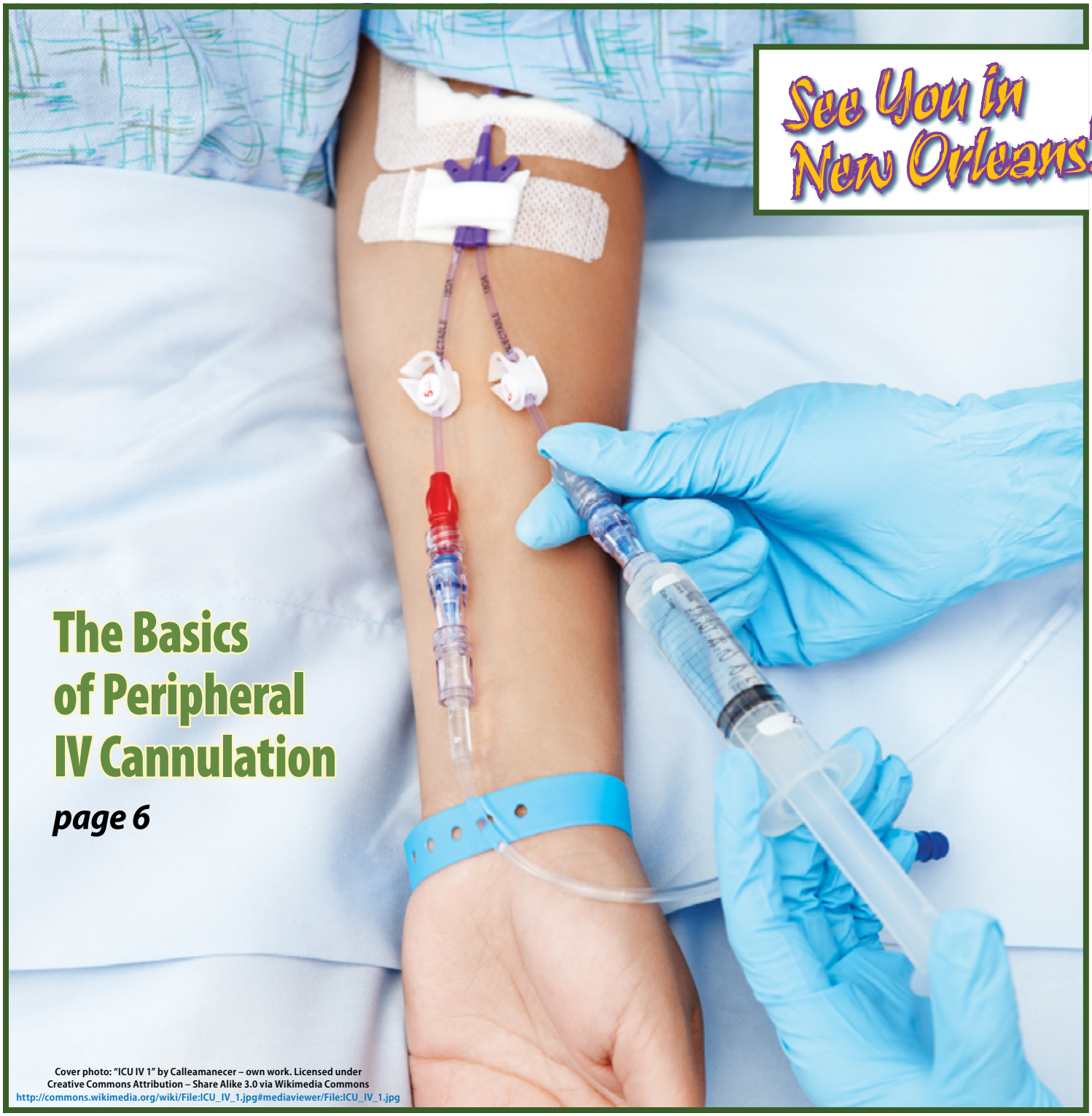
SENSOR ONLINE

THE OFFICIAL PUBLICATION OF THE AMERICAN SOCIETY OF ANESTHESIA TECHNOLOGISTS AND TECHNICIANS VOLUME XXIV / SUMMER 2014



See You in New Orleans!

The Basics of Peripheral IV Cannulation

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American Society of Anesthesia Technologists and Technicians

Educational Conference

ASTOR CROWNE PLAZA®

NEW ORLEANS • FRENCH QUARTER

OCTOBER 9-11, 2014

SENSOR

is the quarterly publication of the American Society of Anesthesia Technologists and Technicians

7044 South 13th Street
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Mon.–Thurs., 7:30AM to 4PM and
Fri., 7:30AM to 3:30PM, Central Time

EXECUTIVE DIRECTOR: Mike McManus
414/908-4942 ext. 119 Fax: 414/768-8001
Email: customercare@asatt.org
Web: www.asatt.org

PRESIDENT
Vicki Reyes, Cer.A.T.T.
Work: 626/564-3018 Fax: 626/851-7204
Email: president@asatt.org

PRESIDENT-ELECT
Jeremy Wyatt, Cer.A.T.
Cell: 206/715-5108
Work: 425/228-3440, ext 4457
Email: president-elect@upmc.edu

IMMEDIATE PAST-PRESIDENT
Vicki Carse, Cer.A.T.
Work: 412/232-5807
Email: past-president@asatt.org

TREASURER
David Foster, Cer.A.T.
Work: 858/657-6534
Email: treasurer@asatt.org

SECRETARY
Tony Castillo, Cer.A.T.T.
Work: 626/564-5737
Email: secretary@asatt.org

SENSOR STAFF

Sue Christian, Cer.A.T.T.
Editor
Work: 615/343-7077 Fax: 615/343-1966
Email: region3director@asatt.org

Bill Glass, SFB
Layout and Design
Email: Sensor@AlphaBaseInc.com

SENSOR provides its readers with information on anesthesia-related topics, and with a forum for learning and discussion. *The views expressed herein are those of individual authors, and do not necessarily reflect the views or opinions of ASATT.*

All submissions pertinent to the objectives of ASATT will be considered for publication.
Preferred media: CD or via email.
Photos in TIF or JPG formats preferred.
Photographic prints *can* be returned.

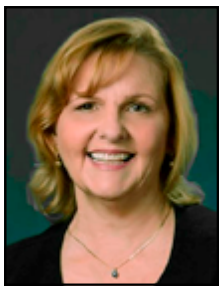
ISSUE DEADLINES:

Fall ..... November 1st
Winter ..... January 1st
Spring ..... April 1st
Summer ..... July 1st

Display ad rates and size specifications can be requested from ASATT at 414/908-4942 ext. 450.

VICKI REYES, CER.A.T.T.

PRESIDENT'S Message



Summer is here, I hope everyone will be able to take some time off for a vacation! If not ... ***do I have a vacation plan for you!!***

The American Society of Anesthesia Technologists and Technicians will be celebrating its 25th Anniversary in New Orleans. That's a quarter of a century! Please join us in the celebration as we move towards the half-century mark.

Obviously there have been way too many strides culminating in the advancement of our profession to mention here, but don't worry — we are planning on letting you know what they are at the Annual Meeting.

As always the meeting is shaping up to include many excellent speakers and the theme is **Safe Anesthesia Care.** This includes both safe delivery of anesthesia to a varied population as well as safe practice on the part of the anesthesia care team. We are trying a few new options to keep the meeting interesting and engaging which were suggested through your feedback of previous meeting evaluations.

It is not enough to be busy; so are the ants. The question is: What are we busy about?
~ Henry David Thoreau

Election results will be out after August 8, 2014. I can't recall how many different ways our past and present Boards of Directors have asked membership to become involved with the Society, but this is one of the most effective ways to make a difference. An elected position is not the only way; you could serve as a committee member as well. Are you interested in education, accreditation, test writing, strategic planning? Joining a committee is a good way to get an idea of what goes on with the Board without necessarily running for a position. Maybe you are just unsure of the time commitment or think you are too busy, but as Henry David Thoreau states: "It is not enough to be busy; so are the ants. The question is: What are we busy about?" Some of the busiest people I know have an overwhelming amount of tasks before them, yet still manage to get a lot done. You never know if you are able to rise to the occasion, until you give it a try!

To address some of these concerns, there will be an information session with some members of the Board and Mike McManus, Association President. It will be held Thursday, October 9, 2014 at 5:30 p.m., located close to the Registration Desk. I would encourage you to start thinking now what it is you would like to know about being involved with your association. This is not set up as a forum for complaints but for those who are truly interested in the organization, methodology and role of the association's Board of Directors and various committees. Writing your questions and thoughts down in advance will help you to get the most out of this session.

Enjoy the rest of the summer! I look forward to seeing many old and new friends this year in Louisiana!

Vicki Reyes, Cer.A.T.T.
ASATT President

25th Annual
ASATT Educational Conference

Astor Crowne Plaza ~ New Orleans, Louisiana

October 9–11, 2014

SCHEDULE OF EVENTS

Thursday, October 9

1800 – 2000 ..... Registration and Reception
*** 1700 – 1800 ..... Joe Conley, RCP, RRT – *Troubleshooting Anesthesia Machines from Patient to Machines*** [CAT I]

Friday, October 10

0700 – 0815 ..... Registration Breakfast and Vendors
0815 – 0830 ..... Welcome and Announcements
0830 – 0930 ..... Diane Aleandro, Cer.A.T. – *Infection Prevention Standards & Practices* [CAT I]
0930 – 1030 ..... John Rivera, BS, MA – *TBD* [CAT I]
1030 – 1100 ..... Break / Vendors
1100 – 1200 ..... Kevin Leuders – *Understanding Capnography in Everyday Practice* [CAT I]
1200 – 1300 ..... Lunch / Vendors
1300 – 1400 ..... Martha Sayers, Dip App Sci – *Day in the Life of a Kiwi (CMH) Tech and Moving to Our New Hospital* [CAT II]
1400 – 1500 ..... Dr. Joseph Answine – *Clinical Differenes in Inhaled Anesthetics: Is Faster Better?* [CAT I]
1500 – 1530 ..... Break / Vendors
1530 – 1630 ..... Morgan Villareal, Cer.A.T. – *Maximizing Patient Outcomes During Major Pediatric Cardiac Surgery* [CAT I]
1630 – 1730 ..... *TBD*

Saturday, October 11

0700 – 0815 ..... Registration Breakfast and Vendors
0815 – 0830 ..... Welcome and Announcements
0830 – 0930 ..... Jamie Smith, Cer.A.T. – *Pediatric MRI Safety in Anesthesia* [CAT I]
0930 – 1030 ..... Cameron Harris, RPSGT – *Sleep Studies: Contribution to Safe Anesthesia Care* [CAT I]
1030 – 1100 ..... Break / Vendors
1100 – 1200 ..... Kristin Sundet – *Difficult Intubation Tools and Techniques* [CAT I]
1200 – 1300 ..... Lunch / Annual Business Meeting
1300 – 1400 ..... Lori Bower, CCP, LP – *Autologus Blood Salvage: Intraoperative Use of Cell Savers* [CAT I]
1400 – 1500 ..... *TBD*
1500 – 1530 ..... Break
1530 – 1630 ..... *TBD*
1630 – 1730 ..... Regional Meetings

**** Thursday 1700 session may be available at additional cost.***

13 CEs awarded for full participation. To receive full credit for CEs, you must turn in your own Evaluation Sheets each day before leaving.

Program subject to change — keep checking for the most current program

25th Annual Educational Conference

October 9–11, 2014

Astor Crowne Plaza
739 Canal Street, New Orleans, LA 70130
Central Reservations: 888-696-4806
Room rate: $221 plus tax for Single/Double Room
Ask for the ASATT Annual Meeting group code ATT
Prices guaranteed until September 8, 2014, based on availability.

ASATT EIN# 94-3016630

REGISTRATION FORM

Registration Type	Early Bird thru May 31	June 1 thru Aug 15	Aug 16 thru Sept 14	Sept 15 thru Oct 1	ON-SITE after Aug 8	DAILY (check one) ☐ Thurs ☐ Fri ☐ Sat	Amount
Member* Mem. # or User ID: _____	$250	$300	$350	$400	$500	$250	
Non-Member*	$450	$500	$550	$600	$700	$350	
Spouse/Guest**	$200	$250	$250	$250	$250		
						TOTAL	

This is my 1st time attending an ASATT Conference . . . . . ☐ Yes ☐ No

Special physical or dietary needs? ☐ No ☐ Yes *Describe:* _____

Registration fee includes conference materials, opening reception, Friday and Saturday breakfast, Friday and Saturday luncheon, and designated CEs.

*No registration will be processed without payment. Any registrations that do not have the correct payment attached will be held until full payment is received. No exceptions will be made.

**Spouse/Guest rate includes Welcome Reception, meals, and exhibits only.

PARTICIPANT INFORMATION

Please type or carefully print the information requested exactly as it should appear on the roster and participant's name badge.

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Employer/Affiliate of _____

Home Address _____

City_____ State_____ ZIP Code _____

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REFUND POLICY

Cancellations made by Aug. 15, 2014, will receive full refund. Cancellations made Aug. 16 through Sept. 16, 2014, will be penalized 50% of the registration fee. Cancellations made on or after Sept. 17, 2014, will receive no refund.

Print this form, attach payment (if paying by check), and submit to:

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Please note that membership dues are not included in the Conference registration fee and are invoiced separately.

The Basics of Peripheral IV Cannulation

Sue Christian, Cer.A.T.T.
Vanderbilt University Medical Center
Nashville, TN

THE MAJORITY OF PATIENTS admitted to healthcare facilities will require some type of intravenous (IV) access. Patients presenting to the OR for surgical procedures have a minimum of one peripheral IV (PIV), but most often will have at least two. This article will briefly review the anatomy involved with obtaining peripheral IV access for the upper extremity, the equipment and supplies needed, and the technique required to insert a peripheral IV, and also discuss a few of the more common complications associated with PIV.

Why IV access?

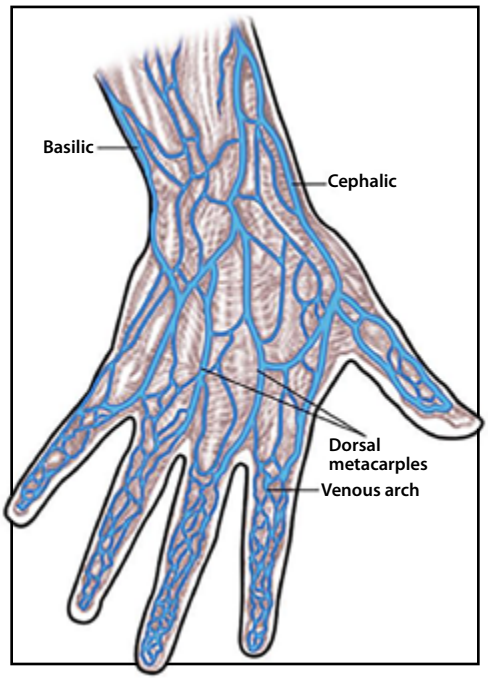
Healthcare clinicians use IVs as a vehicle for the administration of fluids, medications, blood and blood products, pain management, chemotherapy, laboratory testing and parenteral nutrition. IV cannulation also facilitates diagnostic testing (i.e. MRI or CT contrast), dialysis or apheresis, and assists the clinician with hemodynamic monitoring. IV therapy is the fastest way to deliver fluids and medications throughout the body.

What is IV cannulation?

Intravenous simply means "within a vein." The procedure requires a skilled clinician to place a temporary or permanent cannula inside the vein to allow them access to the circulatory system. There are two types of venous access: peripheral venous access and central venous access. Usually the clinical procedure will dictate which venous access is preferred but most clinicians will attempt to use the least invasive route for the appropriate treatment.

Anatomy: Blood, blood vessels and the heart

Think of the circulatory system as a transportation system that consists of blood, blood vessels and the heart. Because blood is a liquid tissue, it needs a carrier (blood vessels). Blood serves many functions but its primary responsibilities are to transport nutrients, wastes, oxygen and carbon dioxide. The heart is a double pump; one side pumps out deoxygenated blood to the lungs while the other side pumps out oxygenated blood to the body's various organs and tissues. The blood vessels are the vehicle for moving blood throughout the body and are structured to fit their function. Those vessels consist of arteries, veins and capillaries. Both arteries and veins are constructed of three layers: tunica adventitia (outer layer), tunica media (middle layer) and the tunica intima (inner layer). Additionally, arteries and veins are lined by a single layer of epithelial cells and contain smooth muscle. Arteries are the first to receive blood from the heart and therefore must be able to withstand high pressure which is why their structural design is different than that of veins. The artery is strengthened by a much thicker layer of tunica media and contains an additional layer of elastic fibers. The elastic fibers allow the artery to stretch and then return to its normal size while the smooth muscle allows the artery to constrict and dilate. On the other hand, veins are located at further distances from the heart and the blood entering them is under much less pressure. Their structural



Superficial veins of the fingers and hands are of small diameter.

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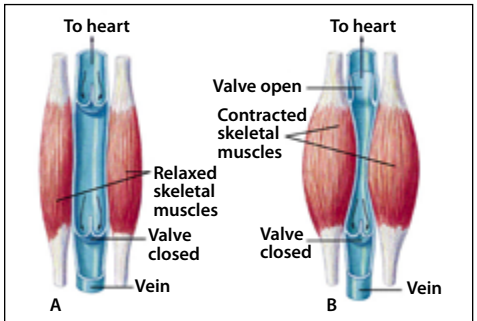
design differs from arteries in that the veins have a thicker tunica adventitia, have thinner walls, are wider in diameter, and contain a very thin layer of smooth muscle. With only a thin layer of muscle, the veins (especially the lower extremities) must fight gravitational force, making them reliant on the surrounding musculature to aide in moving the blood back to the heart. To prevent the backflow of blood, veins contain valves. When blood is flowing toward the heart, the valves lie flat against the wall. If the blood begins to flow backward, the valve closes. Capillaries are the smallest blood vessel, yet they function as a bridge between the arteries and veins. By comparison, capillaries are also much narrower than arteries and veins. Because they have thinner walls, their surface area is increased which makes it the ideal site for molecules to be exchanged between the blood and the interstitial fluid.

Anatomy: The circulatory system

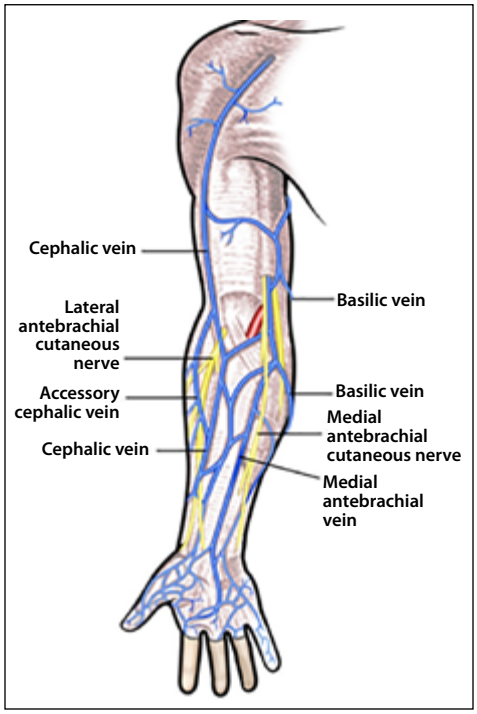
The circulatory system is divided into two sections: the pulmonary circuit (right side) and the systemic circuit (left side). The pulmonary circuit transports deoxygenated blood from the lower half of body (inferior vena cava) and the upper half of the body (superior vena cava) to the lungs via the pulmonary trunk. Blood enters the right atrium, flows through the tricuspid valve and enters the ventricles. When the ventricle contracts, the tricuspid valve closes, the pulmonary valve opens and blood then enters into the pulmonary artery. The pulmonary artery splits in order to deliver blood to both the right and left lungs. In this phase, the carbon dioxide is exchanged for a fresh supply of oxygen. Blood exits the lungs through the pulmonary veins and delivers the oxygenated blood to the left atrium. In turn, the systemic circuit supplies oxygenated blood from the lungs via the pulmonary veins to the left atrium. The mitral valve (or bicuspid) opens, blood flows through and enters the aortic valve. The contraction of the left ventricle closes the mitral valve and opens the aortic valve, sending the blood to the aorta. Blood in the aorta is then distributed system-wide to the tissues and organs of the body, where it unloads O_2 and picks up CO_2. Blood then returns to the heart via the vena cava and starts the cycle all over again.



- Veins contain a thin layer of muscle and to fight gravitational force, must rely on the surrounding muscles to aid in the continuous one-way flow of blood back to the heart. As the muscle contracture forces the blood through the vein and toward the heart, the valves lie flat against the wall (B).
- When the surrounding muscle is relaxed, the valves close to prevent backflow (A).

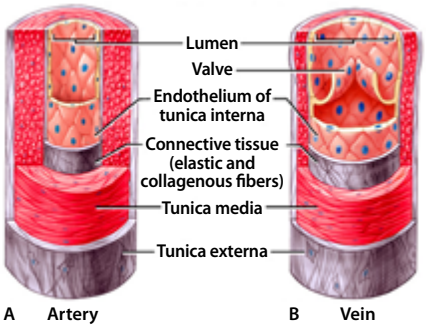
One-way venous valves.

Superficial and deep veins of the upper extremity are of larger diameter and support larger-gauge IV catheters.



Anatomy: Skin

Considered the largest organ of the body, the skin is a protective layer between us and the external environment. The skin also plays an important role in assisting with regulating our core body temperature as it acts as an insulator for our body against heat loss and an evaporator for heat retention through the use of sweat glands. Our skin is also a sensor receptor; it allows us to feel pain, heat and coldness. The skin has three different layers: the epidermis, dermis and hypodermis. The epidermis houses the stratum corneum and the stratum germinativum. The stratum corneum is the outermost layer of the skin that protects us against normal wear and tear and is composed of tough dead cells that continuously flake off. Directly below that is the stratum germinativum which is the "production house" for the skin. It is in this area where the new skin cells are produced. Each cell becomes divided into two new cells which then push the older cells upward where they become filled with keratin, flatten out and die to become a layer of the stratum corneum. The dermis is the middle layer of the skin that houses blood vessels, nerve sensors, skin glands and connective tissue. The hypodermis is the innermost and thickest layer of skin whose main purpose is to store fats and then turn them into energy when needed.



- The artery is strengthened with a thicker layer of tunica media and contains an additional layer of elastic fibers (A).
- The vein's structural design is slightly different: It has a thicker layer of tunica externa, contains a thinner layer of elastic fibers, has thinner walls, contains valves, and is wider in diameter (B).

Location, location, location…

Why use veins instead of arteries

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for PIV access? Remember that both arteries and veins are structured to fit their function. Veins are unlike arteries in that they are superficial, have no pulsation and contain dark red blood at the skin surface (aka peripheral IV access). There are two types of venous access: peripheral and central venous. Peripheral access is by far the most common; overall it is generally safer, less invasive, access is easier to obtain, used for shorter time periods and is far less painful than central venous access. Veins in the upper extremities are the preferred site for venous cannulation, although veins in the neck and leg may also be used but usually as a last resort. Keep in mind that there are both superficial and deep veins that course throughout the upper extremity. The superficial veins include the digital, metacarpal, cephalic, basilic and median veins. The dorsal digital veins are located along the side of the fingers and as they course upward toward the hand, unite to empty into the dorsal metacarpal veins. These veins infiltrate very easily and cannulation can be quite painful for the patient, so they should be used only as a last resort. The dorsal metacarpal veins are a popular choice for IV access as they are usually very prominent and easily palpable but will only accept small bore IV catheters. Continuing upward, the antecubital fossa contains the cephalic, basilic and median veins. These veins are also very prominent, easily palpable and will accept larger bore IV catheters. The basilic vein is the largest superficial arm vein of the upper extremity. It begins at the dorsum of the hand and runs along the medial (ulnar) aspect of the arm from the wrist to the shoulder. After the basilic vein crosses the elbow, it drains into the brachial vein. The cephalic vein runs along the lateral (radial) side of the arm (also from the wrist to the shoulder) and empties into the axillary vein. Although the basilic vein is the larger of the two veins, the cephalic vein is easier to access because it is more superficial. The median vein forms a "Y" directly below and above the elbow and drains into the basilic and cephalic veins. There are several deep veins in the hand and forearm (radial, ulna and brachial) and course parallel to the corresponding arteries and nerves. If these veins are the chosen site for IV cannulation, the clinician needs to be acutely aware of the location in relation to the corresponding artery/nerve.

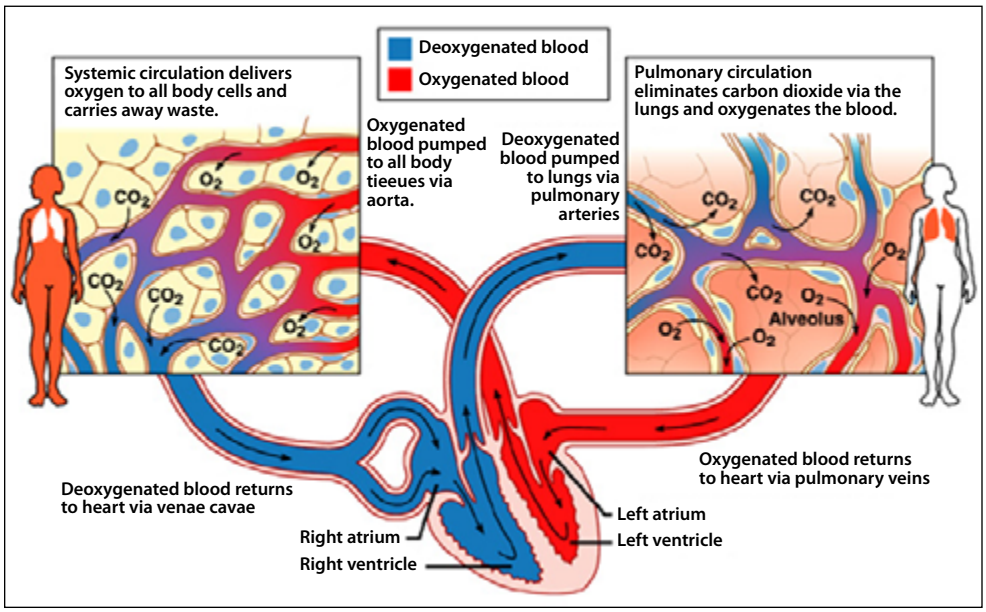
IV catheter selection

The following clinical considerations should be taken into account when selecting the type and size of IV catheter that will be placed: the purpose of the therapy and duration, the patient's age and diagnosis, their underlying disease processes and the condition of their veins.

Skin is held taut with the thumb and stabilizes the needle angle for entry into the vein.

Types of PIV catheters

The two most common types of IV catheters are the steel needle and safety over the needle catheter. Because the steel needle is much shorter than your typical IV catheter, the needle is surrounded with two rubber or plastic wings for easier insertion/removal. Typically used by phlebotomists for blood draw, there is a short section of tubing attached to the end of the needle that is connected to a blood tube. These needles are smaller in diameter and are available in 21, 23 and 25 gauge. This needle is known by several different names: hollow needle, winged needle, scalp vein needle or butterfly needle. Safety over the needle catheter is the most commonly used device. The catheter (made from Teflon or silicone) fits over the needle, contains a flashback chamber and has a tapered end to minimize tissue damage during insertion. Held like a pen, it is inserted through the skin and advanced into the vein. When the tip of the needle enters the blood vessel, blood enters the flashback chamber. The catheter is then carefully threaded over the needle into the blood vessel with simultaneous needle withdraw. There are two types of safety IV catheter designs: active



The heart is a double pump.

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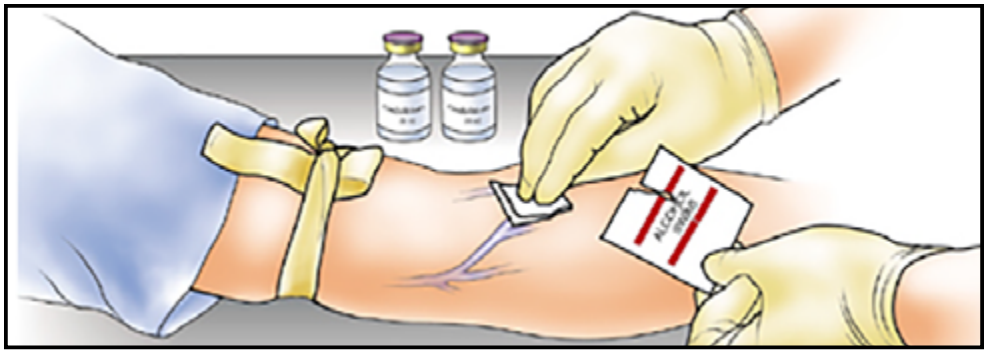
and passive. With the active system, the clinician must activate the safety mechanism after insertion whereas the passive system automatically employs after the catheter is inserted. These IV catheters are available in a variety of sizes, with the most common sizes being 14g, 16g, 18g, 20g, 22g and 24g and are color-coded for easy recognition. Three points to remember:

- The higher the number, the smaller the gauge
- The larger the gauge, the more fluid can be delivered
- Shorter catheters allow more fluid to be delivered

Administration Sets

Administration sets are manufactured according to flow rate. The microdrip set is designed to deliver 60 gtts (drops) per cc (ml). This set is ideal for patients who are on fluid restrictions (pediatric patients, heart failure, etc.). The macrodrip set is designed to deliver 10–20 gtts (drops) per cc (ml) and is used on patients that require larger amount of IV fluids (trauma, burns, etc.). Blood tubing sets are a "Y" shaped tubing that is also a 10 gtts (drops) per cc (ml) set, but is used with NS for blood administration. Each of these administration sets contains a drip chamber and a regulator to control the flow rate. Buretrol sets are a 60 gtts (drops) per cc (ml) set that contain a 150 ml burette and a ball valve. The buretrol holds a limited volume of IV fluids/medications and the ball valve component is designed to prevent air from passing through the valve and entering the tubing, which is why it is used most often in the pediatric population. While some administration sets can be used with IV pumps, these sets are generally used for gravity infusions.



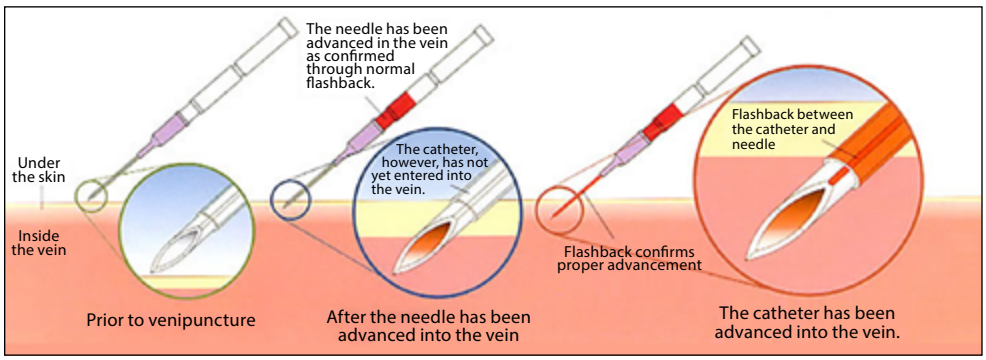
Once the tourniquet is applied, use forceful strokes to clean and disinfect the area prior to catheter insertion.

Supplies and Preparation Needed for PIV Access

Prior to inserting the PIV catheter, the clinician will gather the necessary supplies that should minimally consist of several IV catheters of the appropriate size, the correct IV solution, the correct administration set, a tourniquet, alcohol preps or chlorhexidine prep stick, tegaderm or opsite, gloves and tape. The clinician should check the label and the expiration date of the IV solution and look for tears in the bag. If the solution is cloudy or crystallized, do not use (all IV fluids are supposed to be clear). Make sure that the pull tab is intact. To prepare the IV bag, remove the protective tab from the insertion port, close the flow clamp on the administration set, and then remove the protective cap from the administration set. Support the port firmly with one hand, and insert the spike with the other hand; hang the bag and squeeze the drip chamber until it is half full. To prime the IV tubing, open the flow clamp and hold the end of the tubing over a container to catch the exiting fluid. Leave the clamp open until the IV solution flows through the entire length of the tubing, forcing out all of the air. Be sure to maintain the sterility of the tubing during this process! After priming the tubing is complete, close the clamp.

Selecting the Site

The clinician should assess the peripheral veins in both arms and attempt to use a vein in the nondominant arm if at all possible. Arms that are injured, or contain open sores or burns, should be avoided. If the patient has a fistula, shunt or has had a mastectomy, consult with the attending physician before attempting to cannulate. Start with a vein at the most distal site so you can move proximally as needed for additional insertion sites and ensure that the vein can accommodate the catheter size being used (blood still needs to be able to flow around the catheter). Once the site has been selected, apply a tourniquet 5–6 inches above the insertion site to dilate the vein. At this point, clinicians should wash and dry their hands and don gloves, as strict adherence to aseptic technique should be followed from this point forward. Proceed to cleanse the area by applying friction and using back and forth strokes in order to adequately cleanse the area of inser-



Note the depth of the needle before confirmation of flashback.

MORE

Color	Gauge	OD mm	Length mm	Flow-rate ml/min	Use
Violet	26G	0.6	19	20–22	neonates
Yellow	24G	0.7	19	22–26	neonate blood products, individuals with fragile veins
Blue	22G	0.8–0.9	25	26–35	pediatric standard
Pink	20G	1.0–1.1	32	57–65	pediatric blood components, adult minor surgery
Green	18G	1.3	32–45	85–105	adult blood components, major surgery
Gray	16G	1.7–1.8	45	180–215	major trauma cases, cardiac/vascular cases
Orange	14G	2.1	45	340–350	major trauma cases, cardiac/vascular cases

Color coding and gauge sizes of most commonly used IV catheters. The style of catheter (winged versus straight) and length of catheter will determine flow rate. Numbers will vary, depending on manufacturer.

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tion. Be sure to allow adequate time for the surface to dry. The skin should be held taut 1–2 inches below the injection site with the thumb or index finger and with the bevel up, advance the needle into the skin directly above the vein at a 20–40 degree angle. Once you have confirmed blood return, decrease the angle of the catheter and carefully advance the needle and the catheter approximately ¼ inch to assure the catheter is in the vein. This can be confirmed with a steady backflow of blood. With the needle still inserted in the catheter, advance the catheter into the vein while continuing to hold the skin taut. Release the tourniquet and apply gentle pressure to the area just above the catheter tip (do not compress the catheter!) to prevent bleeding while simultaneously removing the needle. Attach the pre-primed IV tubing with solution and slowly open the regulator clamp. Confirm that the fluid is flowing without restrictions and then regulate the flow source. Secure the IV hub in place with tape, cleanse the area to remove any blood spillage and then dress the site with a transparent semipermeable dressing (opsite, tegaderm, etc.) Discard all sharp devices in the appropriate container, remove gloves and wash hands.

Please note that this is a basic summary of PIV cannulation and as with all procedures, there are several different schools of thought when it comes to the techniques used for IV cannulation. For example: There are two different techniques taught to insert a PIV catheter: directly over the vein as discussed above or inserting the catheter alongside the vein wall and then directing the catheter into the side of the vein wall at a 30–40 degree angle. Use the technique that is most comfortable to you.

Some healthcare facilities require that a local anesthetic be used prior to inserting the PIV catheter.

Instructors may advise students that when inserting a smaller gauge catheter (i.e. 24g) that the needle should be inserted at a 10-25 degree angle where as a larger catheter (i.e. 16g) that is being inserted into a deeper vein should have an angle on the needle of at least 30–45 degrees.

Also, some healthcare facilities require that an antibiotic ointment be placed over the cannulated site or use an impregnated antibiotic transparent semipermeable dressing to cover the site.

Clinician may be required to time, date and initial the transparent dressing.

Documentation

A patient may not receive a PIV catheter unless it was ordered by the physician. Once the PIV is inserted and secured, the procedure must be documented on the patients chart. Normally this will consist of a brief note that contains the time and date the catheter was inserted, whether or not flashback was observed, the purpose for the PIV, the type of solution being administered and the flow rate. A comment or two should also be added addressing whether or not the patient tolerated the procedure and/or any problems encountered during catheter insertion (i.e. multiple attempts). The clinician should then sign the documentation.

PIV Maintenance

According to the Intravenous Nurse Society, guidelines have been established as to the length of time the catheter may stay in place. If PIV access is still required after 48 to 72 hours, the existing catheter should be replaced (at a different location). Furthermore, administration sets should be changed every 72 hours with the following exceptions:

- If the administration set was contaminated or malfunctioned, it should be changed immediately.
- When administering blood, the administration set should be changed after each unit or every four hours.
- If the patient is receiving lipid emulsions, the set needs to be changed after each unit is *administered or every 24 hours.*

For parenteral nutrition the set should be changed every 24 hours.

Complications

There are numerous complications associated with PIV insertion, with the most common being:

MORE

continued from page 10

Infection surrounding the insertion site is normally the result of not prepping and cleaning the injection site appropriately or poor adherence to aseptic technique. The site may be red, swollen or warm to the touch. Remove the PIV and restart in the unaffected arm.

Infiltration occurs when the catheter becomes dislodged from the vein. The area above the insertion site may be swollen and in extreme cases, extend the length of the arm. Other signs the PIV may have infiltrated are: absence of backflow of blood, flow rate slowed or stopped, or decreased skin temperature around the site. If this occurs, restart the PIV in the unaffected arm. If infiltration was severe enough, treat the infiltration and then dress the site appropriately.

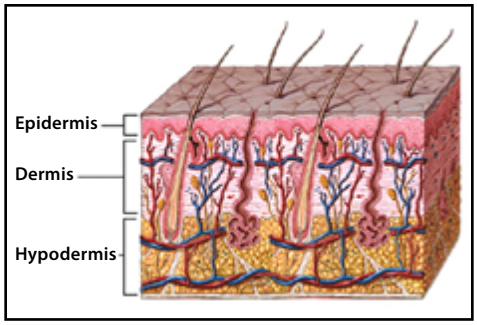
Clotting may occur if the patient is active enough to cause a backflow of blood or if the IV flow rate is set too low. Remove the PIV and restart in the unaffected arm.

Occlusion may occur if the catheter becomes kinked, causing blood to back up into the IV tubing. Attempt to flush the IV with mild pressure but do not use force. Remove and restart the IV in the unaffected arm

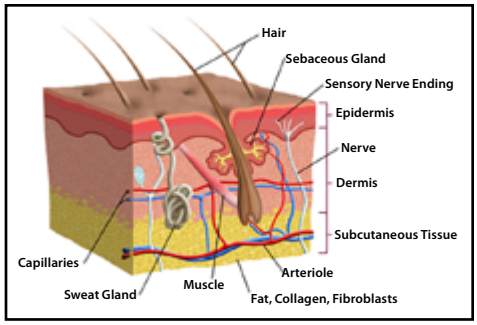
Hematomas occur when the vein is punctured through the other wall at time of insertion, when there is a leakage of blood from needle displacement or when the catheter is too big for the vein. The area around the site will become discolored and the clinician will not be able to advance the catheter. Remove the catheter and apply pressure to the area. Restart the IV in the unaffected arm with the appropriate size catheter.

Phlebitis & Thrombosis occurs when a clot forms in the vein. Clot formation in the superficial veins is referred to as phlebitis while clot formation in the deeper veins is known as thrombosis. The patient may complain of irritation the longer the infusion runs or the vein may be hard to the touch. Apply warm packs to the affected area and restart the IV in the unaffected extremity.

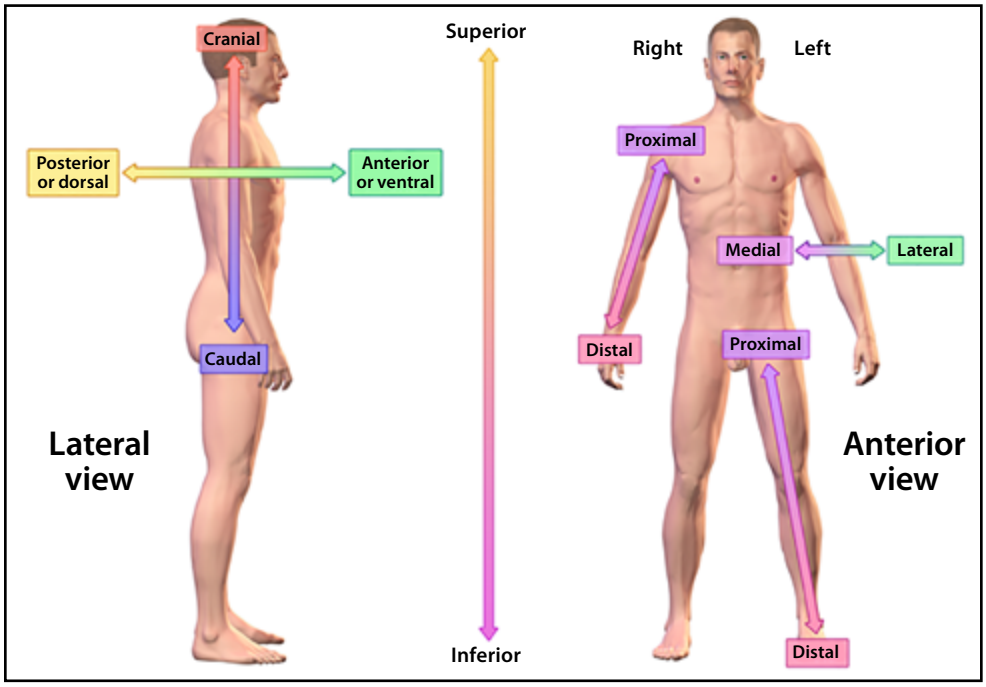
Air embolism occurs when the IV solution runs out and the replacement fluid bag pushes air through the line. The patient may experience respiratory distress or lose consciousness. Place the patient in Trendelenburg, administer oxygen and call the treating physician.



Our skin has three different layers: the epidermis, the dermis, and the hypodermis.



A cross-sectional view of the skin. Note the location/depth of the blood vessels and nerve endings.



Directional references.

Summary

Experienced clinicians make IV insertion look easy but in actuality it can be very challenging. Many patients have experienced negative outcomes with IV insertion and talking them through the procedure may ease their anxiety. It takes practice to become proficient in the procedure and documentation of proficiencies for performing the procedure is required.

References

Association for Vascular Access accessed: **www.avainfo.org/website/article.asp?id=280986**

Adams, J., *Intravenous and Vascular Access Therapy.* In: Clinical Nursing Skills and Techniques, Perry, AG, Potter, PA (Eds), Mosby, St. Louis 2006. p.898.

Ahmed, N., Revisiting Peripheral Intravenous Cannula Insertion. Accessed at: **www.abudhabicme.com/main/doc/nurs02d22_27.pdf**

Infusion Nurses Society (2011). Infusion Nursing Standards of Practice. *Journal of Infusion Nursing.* Lippincott Williams & Wilkins. Hagerstown, MD.

TYPES OF IV FLUIDS

Solution	Type of solution	Clinical use	Potential complications
0.9% sodium chloride	Isotonic	✓ shock ✓ blood transfusions ✓ hyponatremia ✓ resuscitation ✓ hypercalcemia ✓ metabolic alkalosis ✓ fluid replacement for diabetic ketoacidosis	do not use in patients with edema, congestive heart failure or hypernatremia can lead to fluid overload
Lactated ringers	Isotonic	✓ burns ✓ acute blood loss ✓ dehydration ✓ hypovolemia due to third spacing	can cause hyperkalemia in patients with renal failure as it contains potassium do not use in patients with liver disease as patient cannot metabolize lactate do not give to patients with a ph greater than 7.5 as a normal liver will convert it to bicarbonate
Dextrose 5% in water	Isotonic	✓ dehydration ✓ fluid loss ✓ hypernatremia	can lead to fluid overload in cardaic and renal patients can cause hyperglycemia
0.45% sodium chloride	Hypotonic	✓ gastric fluid loss from vomiting ✓ hypertonic dehydration	may increase intracranial pressure may cause cardiovascular collapse do not use in patients with liver disease, trauma or burns
Dextrose 5% in half-sodium chloride	Hypertonic	✓ prevents hypoglycemia ✓ prevents cerebral edema	
Dextrose 5% in normal sodium chloride	Hypertonic	✓ hypotonic dehydration	do not use in cardiac and renal patients — may cause CHF or pumonary edema

Important Upcoming Changes
to the Anesthesia Technology Profession

ANESTHESIA TECHNOLOGY is rapidly being recognized as an Allied Health Profession. As a profession sometimes we need to make difficult and somewhat painful decisions in order to secure our position as a member of the Anesthesia Care Team. To help with these transitions we are circulating information that will impact many of us in the Anesthesia Technology vocation. Listed below are some very important dates to remember and plan for. ASATT is also requesting your assistance to disseminate this information to all of your coworkers and those looking to begin a career in the anesthesia technology profession.

- July 15, 2015 is the last day to use work experience for qualification of the technician certification exam.
- If you plan on taking the technician certification exam you will need to have the examination application completely filled out, with all necessary supporting documentation and payment to ASATT Headquarters prior to June 30, 2015.
- You will need to fully meet ALL eligibility requirements by July 15, 2015 in order to qualify for the technician certification exam.
- After July 15, 2015 you will be eligible for the technologist level exam after successful completion of an ASATT approved/ accredited program.
- At midnight on July 15, 2015 CDT we will retire the technician level exam.
- After that date, the technologist certification exam will be the only one available.

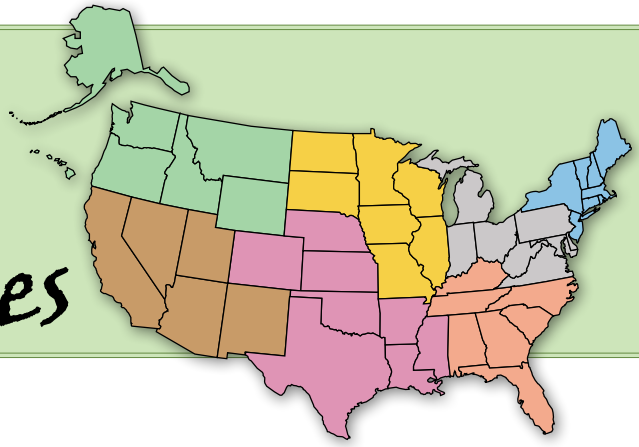
Important notes to remember:

Certified Technicians will not be grandfathered to Certified Technologists.

You will be able to keep your Technician Certification as long as you meet the 20 CEs needed for your certification and remain in good standing.

Vicki Reyes, Cer.A.T.T., *Chair*
EDUCATION/ACCREDITATION COMMITTEE

ASATT Regional Activities



REGION 1

CT–ME–MA–NH–NJ–NY–RI–VT
Director: Joyce Freeeman, Cer.A.T.
Work: 315/464-2825
Email: region1director@asatt.org

Hello Everyone!

I hope all of you are enjoying your summer and staying cool. We have had a lot of activity in Region 1. I want to thank everyone who has attended the different educational seminars. In December, NOVAMED and the NYSSA/PGA presented a one-day seminar for us. This event was free. It really brought out a lot of anesthesia technicians and technologists. I believe we had close 100 people sign up for the meeting with about 70 people attending. The seminar had seven lecture topics, and if you attended you obtained four CEUs. The reason is due to the length of the lecture. They didn't meet the required 55 minutes with 10 minutes of question and answers. This seminar was not held by ASATT, but the topics were approved by ASATT for four CEUs. This all happened very quickly so it was more important to have the topics approved than to keep sending the material back. I explained to the hosts that the topics would need to be longer in length if they decided to do the seminar again in the future. Also, please make sure you held onto your certificate. The CEUs were not placed in your ASATT bank. This could be the reason your totals may be off if you attended this program in December.

I also want to let you know that NOVAMED and NYSSA/PGA are planning another program for December 2014. I don't have any details for now. I will post it on the website when I find out more.

Our next and final educational meeting for Region 1 will be held in Atlantic City. I hope to see a lot of you at this program. The information is listed on the website along with the flyer that you can print. So far for Region 1, we've had 136 techs attend the educational meetings in December, May and June. We have about 20 techs signed up for the meeting in July so far.

Our annual meeting will be October 9–11 in New Orleans at the Astor Crowne Plaza. There were a lot of meetings this year in Region 1, but please remember to attend the national meeting, if possible. This meeting has anesthesia technicians and technologists from across the country. This will be a fantastic time to meet and get to know other technicians, and to learn about your organization and what is going on within it. If you are a member, you need to know how your organization is supporting you for your educational endeavors. How important it is to continue to move forward as an organization. Please don't think, "I have all of my CEUs and I don't need any more." Your support at the meeting is extremely important as well. This is the opportunity to let your voice be heard.

If you have any questions that I can help you with regarding ASATT, please contact me. If you have contacted me and I didn't get back to you, reach out again. I try to answer questions the first time, but if I didn't do this, please reach out again. I held a meeting in Iselin, New Jersey, and I want to say it was a pleasure meeting the students and feeling your excitement and the energy that you have to be in the program. I wish all of you much success! I want to thank everyone who helped out during this meeting. I couldn't have done it without you.

Be blessed and I hope to see you soon in Atlantic City and then in New Orleans!!

REGION 2

DE–IN–MD–MI–OH–PA–VA–WV
Director: Randy L. Harris, Cer.A.T.
Work: 443/492-8928
Email: region2director@asatt.org

Greetings Region 2,

I hope everyone is staying cool during our summer heat. I have enjoyed serving as your Regional Director and look forward to serving you all for the next two years. As our society moves forward, I encourage those of you still wanting to become a certified anesthesia technician to study for your exam. You still have time before the deadline of June 2015. It will be here sooner than you know it.

Our national meeting will be here in three months. I hope to see all of Region 2's members in New Orleans, October 9–11. During this meeting you could earn up to 13 CEs. Everyone should periodically check their profile on our website to see what CEs you have and what is needed to maintain your certification.

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As I am thinking about next year, I would like for you to think about hosting a Regional meeting at your hospital. I will work with you through the process if you consider hosting a meeting.

Please don't hesitate to contact me with any questions or concerns.

REGION 3

AL–FL–GA–KY–NC–SC–TN
Interim Director: Gail Walker, Cer.A.T.
Work: *will appear in the next* SENSOR
Email: gwalker@unch.unc.edu

Unfortunately Marc McGaffic is no longer able to fulfill his duties as Region 3 Director.

Gail Walker, Cer.A.T., has agreed to act as Interim Director. Gail was previously an ASATT President and has long been affiliated with the North Carolina State Society. Please welcome Gail to this position.

Vicki Reyes, Cer.A.T.T.
President

REGION 4

IL–IA–MN–MO–ND–SD–WI
Director: Cindy Zellner, Cer.A.T.
Work: 715/387-7179 • Fax: 715/387-5890
Email: region4director@asatt.org

Hello Region 4 Members. I hope everyone is making it through the hot stormy weather we have been having. I want to first congratulate all the newly certified members. Remember, April 15, 2015 will mark the end of the opportunity to sit this exam. You have nothing to lose and everything to gain.

Have you ever thought to yourself, "*Someday*, I would like to attend an ASATT National Conference, but I've just never gotten around to it." Well, THIS would be the one! We have a lot to look forward to this year with our national meeting in New Orleans, October 9–11 at the Astor Crowne Plaza. We will be celebrating the 25th Anniversary of ASATT right back where it started with the first meeting, 25 years ago, so you won't want to miss this one! There's still time to register for the conference online and make hotel and travel arrangements.

Have you checked out the new ASATT website? Everything is much easier to find now, and it's up-to-date and looks great! They have done a fine job of arranging all the areas you may want to explore. Take some time to familiarize yourself with all the dropdowns so you know where to find just what it is you are looking for.

One final reminder: We are over halfway through 2014. Don't wait until December to try to figure out how you are going to get those remaining necessary CEs. Go through your information. You still have time to get those needed to recertify.

As always, if you have any questions or concerns, please feel free to contact me. Hope to see you in October!

REGION 5

AR–CO–KS–LA–MS–NE–OK–TX
Director: Robert Lopez, Cer.A.T.
Work: 713/441-1736
Email: region5director@asatt.org

No report submitted.

REGION 6

AZ–CA–NM–NV–UT
Director: Paul Castaneda, Cer.A.T.
Work: 520/360-2055
Email: region6director@asatt.org

Greetings Region Six.

The heat of summer has been sizzling up, and on that note, so is Las Vegas and the Regional conference. June 21st and 22nd. Please come out and enjoy sunny Las Vegas and all the hard work that Al Tagle has put together to further our knowledge in Anesthesia. I want to thank everyone whom has helped in putting this conference on. It is a great deal of work. Vendor support for this conference was an extremely great help. If you can make it please register ASAP. Also region six let's try to put up good numbers at the national meeting in October in New Orleans. Thanks to every member out there as without your support we wouldn't get anywhere.

See you guys soon.

REGION 7

AK–HI–ID–MT–OR–WA–WY
Director: Delbert Macanas, Cer.A.T.
Work: 808/547-9872 (0930–1830 PT M–F)
Email: region7director@asatt.org

Howzit Region 7!!!

It is summer!! I hope all of you are enjoying the warm weather, summer vacations with your loved ones, and overall a great time of the year. We're just now getting to the really hot part of summer. Enjoy the times!! But, some of you have had bad weather, so please stay safe and out of harm's way.

"The most important thing is to enjoy your life – to be happy – it's all that matters."
~ Audrey Hepburn ~

We have been very fortunate in Region 7 — we have enjoyed two excellent meetings this year. Jeremy Wyatt did a great job on the April 26th meeting at Valley Medical Center. Big treat for me ... I got to attend a Seattle Mariners game! Mahalo!!! Kellie Hines did another tremendous job with assistance from Larry Roberts and Neil Allen on

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June 28th at Kaiser Sunnyside Medical Center. Funny, the weather in both cities was beautiful during my visits. Between the two meetings, we had 65 Anesthesia Technicians and Technologists earn CEs toward recertification. Another bonus: ASATT members don't need to track these CEs; they will go straight to the database.

We need to thank our speakers; they delivered great presentations. So, attendees who attended the meetings please extend our appreciation to them for taking the time to educate us. Without speakers there would be no CEs.

"Appreciation is a wonderful thing. It makes what is excellent in others belong to us as well."
~ Voltaire ~

There is another group of people we need to thank — our vendors! They also take time out of their schedule to attend the meeting and help support us. So, make sure you show your appreciation for all that they do. They are trying to do their job, same as us.

Region 7 recently enjoyed one more meeting on August 10th at the Hilton Waikiki Beach Hotel in Honolulu. We had some great speakers and sponsors! There aren't too many better places to attend a meeting and enjoy a vacation.

These meetings set the tone for everyone to earn CEs toward recertification. Like I have said before, waiting until the last minute to earn all of your CEs is poor planning on your part. Stay ahead of the game.

"Education is not expensive, it's priceless."
~ Anonymous ~

We have had a couple of our peers tentatively step forward to coordinate the meetings in Seattle and Portland next year. If you are interested in hosting the meeting or if you are the tentative people, please contact me when time permits. I would like to start planning the meetings and report to the Board of Directors.

Reminder!! If you are not certified as an Anesthesia Technician, you have a limited period of time to get it done, because the opportunity will be gone forever. Time is short; before you know it, the deadline will be here. All you Certified Anesthesia Technicians ... your chance to become a Technologist will end at the same time.

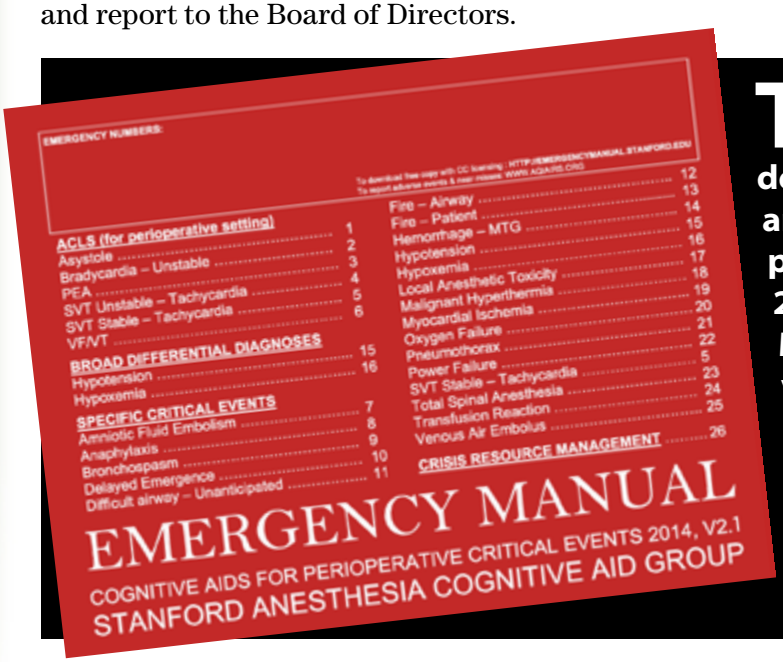
"We often miss opportunity because it's dressed in overalls and looks like work."
~ Thomas Edison ~

The Annual Meeting will be held October 8–10 at the Crowne Plaza in New Orleans. This will be your last opportunity to receive ASATT-tracked CEs. There is so much to see, enjoy, and eat in this historic city. I especially love the food when visiting — Mother's, Café DuMonde, Acme Oyster House, Mulate's, and many more. Of course, no trip is complete without a visit to world famous Bourbon Street! It is an experience on the weekend. Most of all, you will be able to interact with our peers. This is the one time where you will be able to see more than 200 of our profession under the same roof. These are you peers who are going through the same experiences daily. Make an effort to meet others that are in the same profession you're in.

We must all remember being an Anesthesia Technician or Technologist has become our ***profession!*** We have come from many different walks of life, by chance, but mostly because of opportunity. Have pride in yourself; hold your head up high. At one of our Regional Meetings, every physician that lectured started their presentation thanking the Anesthesia Technical staff ... emphasizing how we make their lives much easier. We must continue to stand united moving forward.

"When I look into the future, it's so bright, it burns my eyes."
~ Oprah Winfrey ~

Aloha!



THE Stanford School of Medicine Emergency Manual is a must-have for every anesthesia department. The manual is designed to help anesthesia providers administer the best possible care by providing detailed steps for 25 critical events as well as Crisis Resource Management key points. The manual can be viewed at http://emergencymanual.stanford.edu/ and free PDF downloads are available. The manual may be edited to contain specific and relevant information (such as phone numbers) to your institution. Check it out ... you will be glad you did!

TECHNICIANS PASSING THEIR CERTIFICATION EXAMS

APRIL

Juliet Adjei Baffour, Cer.A.T. ..... Region 1
Krystle Apoka, Cer.A.T. ..... Region 1
Baye Cisse, Cer.A.T. ..... Region 2
Flor De La Cruz, Cer.A.T. ..... Region 1
Todd Drelick, Cer.A.T. ..... Region 2
Sherri Dunnet, Cer.A.T. ..... Region 1
Cord Durham, Cer.A.T. ..... Region 6
Wesley Ellis II, Cer.A.T. ..... Region 2
James Hale, Cer.A.T. ..... Region 6
Sal Intagliata, Cer.A.T. ..... Region 1
Anthony Jureack, Cer.A.T. ..... Region 6
Freddie Keith, Cer.A.T. ..... Region 6
James Landen, Cer.A.T. ..... Region 3
Ammar Qanbas, Cer.A.T. ..... Dubai
Jose Rodriguez-Woss, Cer.A.T. ..... Region 1
Nicholas Russell, Cer.A.T. ..... Region 7
Elias Silverman, Cer.A.T. ..... Region 3
Roger Stephens, Cer.A.T. ..... Region 6
Christopher Varner, Cer.A.T. ..... Region 5
Kristin Zamiska, Cer.A.T. ..... Region 2

MAY

Saad Al Walah, Cer.A.T. ..... Dharan
Maricela Alvarez, Cer.A.T. ..... Region 6
Kyle Anderson, Cer.A.T. ..... Region 5
Alfonso Arriaga, Cer.A.T. ..... Region 6
Willie Barnes, Cer.A.T. ..... Region 6
Michele Begishe, Cer.A.T. ..... Region 6
Anthony Berwald, Cer.A.T. ..... Region 7
Michael Conlon, Jr., Cer.A.T. ..... Region 1
Anna Copeland, Cer.A.T. ..... Region 6
Candra Cruse, Cer.A.T. ..... Region 5
Jeremy Darnell, Cer.A.T. ..... Region 3
Robert Deharpporte, Cer.A.T. ..... Region 2
Jianling Deng, Cer.A.T. ..... Region 1
Richard Dillion, Cer.A.T. ..... Region 1
Taylor Drews, Cer.A.T. ..... Region 4
Keang Goh, Cer.A.T. ..... Region 6
Antoinette Green, Cer.A.T. ..... Region 6
Stephanie Jacock, Cer.A.T. ..... Region 4
Jasmine Kennedy, Cer.A.T. ..... Region 6
Mohammad Kreisha, Cer.A.T. ..... Region 6
David Kim, Cer.A.T. ..... Region 6
Ashley Knecht, Cer.A.T. ..... Region 1
Katelynn Lapenta, Cer.A.T. ..... Region 1
Jason Lygren, Cer.A.T. ..... Region 3
Irene Marroquin, Cer.A.T. ..... Region 6
Edwin Mejia, Cer.A.T. ..... Region 6
Veronica Moorer, Cer.A.T. ..... Region 1
Neidy Morataya, Cer.A.T. ..... Region 6
Randy Ngek, Cer.A.T. ..... Region 6
Olga Perdomo-Gutierrez, Cer.A.T. ..... Region 2
Cindy Perez, Cer.A.T. ..... Region 6
Vigen Piliposyan, Cer.A.T. ..... Region 6
Dennis Sales, Cer.A.T. ..... Region 6
Jeffrey Schmittinger, Cer.A.T. ..... Region 4
Sherri Vankeulen, Cer.A.T. ..... Region 7
Gayle Dooley, Cer.A.T.T. ..... Region 1
Kenneth Hill, Cer.A.T.T. ..... Region 3

JUNE

Charles Anema, Cer.A.T. ..... Region 6
Romelia Arce, Cer.A.T. ..... Region 6
Roy Bohanon, Cer.A.T. ..... Region 2
Jamie Boyer, Cer.A.T. ..... Region 6
Shiloh Brown, Cer.A.T. ..... Region 7
Joe Calles, Cer.A.T. ..... Region 6
Benedict Celi, Cer.A.T. ..... Region 6
Sherree Collier, Cer.A.T. ..... Region 5
David Contreras, Cer.A.T. ..... Region 5
Adam Custer, Cer.A.T. ..... Region 7
Richard Dokunmu, Cer.A.T. ..... Region 6
Michael Dolan, Cer.A.T. ..... Region 6
Nerissa Dufour, Cer.A.T. ..... Region 6
Qian Gao, Cer.A.T. ..... Region 6
Tonny Garcia, Cer.A.T. ..... Region 5
Whitney Gober, Cer.A.T. ..... Region 5
Brandon Green, Cer.A.T. ..... Region 5
Megan Hall, Cer.A.T. ..... Region 6
Brittyn Hanner, Cer.A.T. ..... Region 4
George Hinton, Cer.A.T. ..... Region 2
Larencia Johnson, Cer.A.T. ..... Region 5
Shawn Lampton, Cer.A.T. ..... Region 5
Nathan Lenoir, Cer.A.T. ..... Region 6
Susan Leonard, Cer.A.T. ..... Region 2
Jean Lopez-Presichi, Cer.A.T. ..... Region 6
Felix Ly, Cer.A.T. ..... Region 6
Tahplah Nah, Cer.A.T. ..... Region 5
Richard Paniagua, Cer.A.T. ..... Region 5
Salvador Perez, Cer.A.T. ..... Region 6
Robert Piper, Cer.A.T. ..... Region 6
Starla Puebla, Cer.A.T. ..... Region 7
Marielle Requejo, Cer.A.T. ..... Region 1
Jason Richardson, Cer.A.T. ..... Region 1
Jacqulyn Sexton, Cer.A.T. ..... Region 2
Yue Si, Cer.A.T. ..... Region 1
Devon Southwick, Cer.A.T. ..... Region 1
Maryann Sullivan, Cer.A.T. ..... Region 2
Wasim Tadros, Cer.A.T. ..... Region 6
Blake Wolfe, Cer.A.T. ..... Region 2
Steven Young, Cer.A.T. ..... Region 7
Abdul Ellah Al Khalifah, Cer.A.T.T. ..... Region 5
Julieanna Kapelan, Cer.A.T.T. ..... Region 3
Christopher Shadis, Cer.A.T.T. ..... Region 1

Best Conference to Date: Vanderbilt's Annual Educational Conference

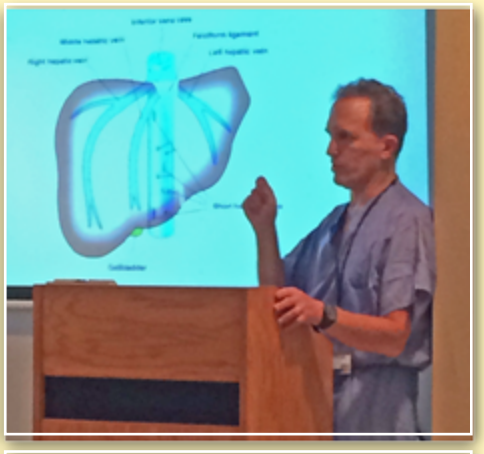
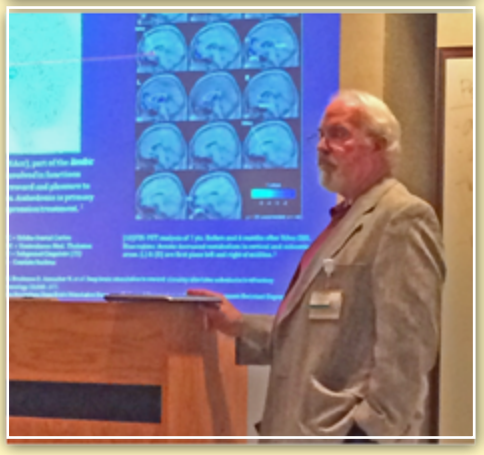
Vanderbilt University Medical Center held their annual educational conference on June 28th. The program was awarded eight CEs by the ASATT Continuing Education Committee. After years of holding conferences, it can't be helped that at some point repetitive topics will be discussed. There is always concern that the subject matter will be relevant to anesthesia technologists and technicians ... that the content delivered will be the most current by incorporating evidence-based practice, and be delivered in a manner that will be easily understood by all techs in attendance. After each conference, one can only hope that future conferences will be equally as successful as the previous one.

We would like to extend our gratitude to Julie Kapelan, Cer.A.T.T., for her choice of subject matter and speakers for this year's conference. While eight hours of lecture can become quite tedious, it was hard to believe that when the last speaker approached the podium, that the conference was close to ending. While we at Vanderbilt may be slightly biased, the speakers once again surpassed our expectations with their presentations.

VANDERBILT UNIVERSITY MEDICAL CENTER

A big thank you to Dr. James Berry; Heather Frankenfield, CRNA; John Shields, CRNA; Dina Velocci, CRNA; Dr. Raj Gupta; Dr. William Furman; and Dr. James Blair for making this our best conference to date! We would also like to thank the techs that traveled from near and far for their continued support. As the true impact of healthcare reform begins to take its foothold, conferences of this nature provide a valuable networking system for anesthesia technicians to consult with one another regarding the rapid changes taking place within our industry. S



Top row, from left: Dr. Raj Gupta, Dr. James Berry, Dr. William Furman.
Bottom row, from left: Dr. James Blair, Dina Velocci, CRNA, Heather Frankenfield, CRNA.

CONTINUING EDUCATION QUIZ

To test your knowledge on this issue's **Science and Technology** *article on page 6, provide correct answers to the following questions on the form below; follow the instructions carefully. Submissions for this issue's Quiz expire December 31, 2015. Achieve 80% in this quiz to earn one (1) Continuing Education credit.*

1. **The blood vessels that receive blood directly from the heart are:**
   A. Veins C. Arteries
   B. Capillaries D. All of the above

2. **The pulmonary artery carries oxygenated blood.**
   ☐ True ☐ False

3. **The layer of skin that houses the blood vessels is:**
   A. Epidermis C. Hypodermis
   B. Dermis D. Stratum corneum

4. **The blood vessel that contains valves are:**
   A. Arteries C. Veins
   B. Capillaries D. Arterioles

5. **All IV catheters contain flashback chambers.**
   ☐ True ☐ False

6. **Items needed for PIV insertion might include:**
   A. Tourniquet
   B. Alcohol preps
   C. IV solution
   D. All of the above

7. **When starting an IV, select a site that is more proximal than distal.**
   ☐ True ☐ False

8. **A 14g catheter is larger than a 24g catheter.**
   ☐ True ☐ False

9. **If the IV flow rate is set too low, this may occur:**
   A. Clotting
   B. Infection
   C. Infiltration
   D. None of the above

10. **Hematomas occur when:**
    A. The vein is punctured through the other wall at time of insertion
    B. There is a leakage of blood from needle displacement
    C. The catheter is too big for the vein
    D. All of the above

To apply for Continuing Education/ Contact Hours:

(1) Provide all the information requested on this form.

(2) Provide correct answers to this issue's quiz in this box > > >

(3) Mail this form along with $10.00 (check or money order, payable to ASATT) to:

ASATT
7044 South 13th Street
Oak Creek, WI 53154-1429

The answers to the Summer 2014 Continuing Education Quiz are:
(circle correct answers)

1: A B C D	6: A B C D
2: T F	7: T F
3: A B C D	8: T F
4: A B C D	9: A B C D
5: T F	10: A B C D

Name_____ **ASATT Number** _____

Street Address_____ **Phone** _____

City_____ **State** _____ **ZIP Code** _____

Signature_____ **Date**_____

ASATT Calendar

Upcoming ASATT Activities

Online voting for Board of Directors closes at end of business day .....August 15

Region 2 Meeting, Hershey, PA .....August 22–23

National Meeting, New Orleans, LA ..... October 9–11

Recertification Packets for the cycle ending 12/31/2014 accepted..... November 15

Recertification cycle ends..... December 31

Grace period for recertification begins with late fee.....January 1

Recertification cycle closes..... January 31

American Society of Anesthesia Technologists and Technicians
7044 South 13th Street
Oak Creek, WI 53154-1429
414/908-4942 Fax: 414/768-8001
info@asatt.org www.ASATT.org