SENSOR ONLINE

THE OFFICIAL PUBLICATION OF THE AMERICAN SOCIETY OF ANESTHESIA TECHNOLOGISTS AND TECHNICIANS VOLUME XXIII / SUMMER 2013

Understanding Anesthesia Pharmacology

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The Gardens at the Flamingo Hotel

American Society of Anesthesia Technologists and Technicians

Education Conference

August 8-10, 2013

Las Vegas, NV • Flamingo Hotel

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VICKI CARSE, CER.A.T.

Interim PRESIDENT'S Message

HELLO, FELLOW ASATT MEMBERS!

Greetings from the beautiful three rivers city of Pittsburgh! Summer is speeding by so quickly ... I hope that all of you are enjoying the lovely weather and have taken an opportunity to take some time off from work to "lean back and smell the roses"! With the many personal activities that are occurring during the next few months, there are several professional ASATT events that will be occurring, also. I hope that you as members of the Society have participated in these events:

- **Renewal of your ASATT yearly membership**
- **ASATT Education Awards**
- **ASATT elections**
- **Registering for the ASATT Annual Educational Conference.**

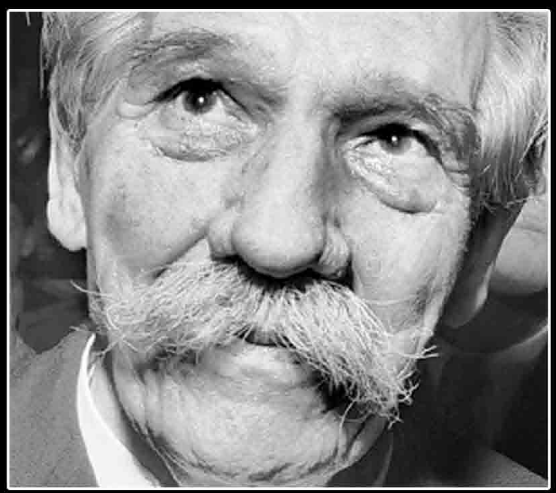
Speaking of the August 2013 Annual Educational Conference in Las Vegas — this year's conference is setting a precedent in ASATT history. The decision to partner with the AANA yearly educational conference is going to be quite exciting; our speaker agenda is filled with very informative and engaging lectures. I am truly enthusiastic about this new partnership with the AANA The AANA is such an influential and strong advocate for our profession as Anesthesia Technicians/Technologists and promotes our status as being an integral member of the anesthesia patient care team.

As we all know, ASATT is only as strong as its membership. Participation in Society functions is imperative for the voice of its members to be heard.

In closing, I like to remind myself of this quote from Albert Schweitzer, below.

I look forward to seeing you in Las Vegas!

—Vicki Carse, Cer.A.T.
Interim President



"Success is not the key to happiness. Happiness is the key to success. If you love what you are doing, you will be successful."

— Dr. Albert Schweitzer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ANESTHESIA TECH DAY

Vanderbilt University Medical Center recognized their anesthesia techs by hosting a luncheon provided by Chief CRNA, Steve Blanks and assistant chief CRNA, Buffy Krauser Lupear. In addition, the clinical providers of the anesthesia department offered hugs and sincere thanks for the contributions and assistance that they provide on a daily basis.

ELECTION TIME!

ASATT Board of Directors elections are under way!

Have you cast YOUR vote yet? Check out the candidates online, then use the ballot (available to active members only) and VOTE! Just click here:

www.ASATT.org/boardnominees.html

Hurry up and log in today! Voting closes August 15th!

Understanding Anesthesia Pharmacology

Vicki Reyes, Cer.A.T.T.
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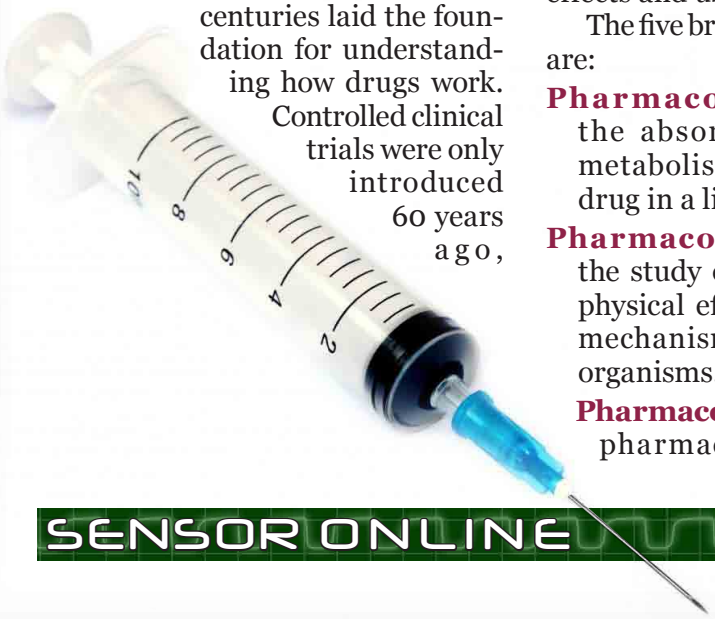
Palmdale, CA

TODAY, the Food and Drug Administration (FDA) carefully monitors new drug development. To understand current anesthesia pharmacology, it is important to understand its origins.

Prehistoric people recognized that there were beneficial and toxic effects of many plant and animal materials. Early records from China, Egypt and India indicate good and bad outcomes from remedies of many types, including a few that are still recognized as useful today. Use of the mandrake root, for pain control, dates back to 2000 BC. In the late 18th century, methods of experimental pharmacology began to develop, including the use of hypnosis, alcohol, herbs and extracts, pressure at the site or ice.

Advances in chemistry and physiology in the 19th and early 20th centuries laid the foundation for understanding how drugs work. Controlled clinical trials were only introduced 60 years ago, which enabled accurate evaluation of therapeutic claims.



Poisons are drugs that have almost exclusively harmful effects; however, Paracelsus (1493–1541) stated that "the dose makes the poison" meaning that any substance can be harmful if taken in the wrong dosage. In the past, drugs' effects were determined by trial and error; fortunately, now they are developed primarily by using systematic scientific research.

Terminology

Very specific terminology is used when referring to drugs, how they work and how they are used. Below are some of the terms commonly heard while working in the operating rooms and anesthesia departments.

Pharmacology is the scientific study of the origin, nature, chemistry, effects and uses of drugs.

The five branches of pharmacology are:

Pharmacokinetics refers to the absorption, distribution, metabolism and excretion of a drug in a living organism.

Pharmacodynamics refers to the study of the biochemical and physical effects of drugs and the mechanisms of action in living organisms.

Pharmacotherapeutics (clinical pharmacology); is a general term for the use of drugs (clinical indications).

Toxicology represents the study of poisons, including the adverse effects of drugs on living organisms.

Pharmacognosy deals with natural drug sources, plants, animals or minerals and their products.

Drugs are categorized under the following terms:

Drugs — *aka* medication — are pharmacologic agents that are capable of interacting with living organisms to produce a biological effect.

Prescription drugs can be used safely and legally under the supervision of a health care professional licensed to prescribe or dispense drugs.

Nonprescription drugs (over-the-counter or OTC) can be used by consumers safely without the supervision of a health care practitioner.

Controlled drug use is controlled by federal, state and local laws, since use of this class of drugs could lead to abuse or dependence.

Drug abuse is the self-directed use of drugs for non-therapeutic purposes.

Chemical name precisely describes its atomic and molecular structure.

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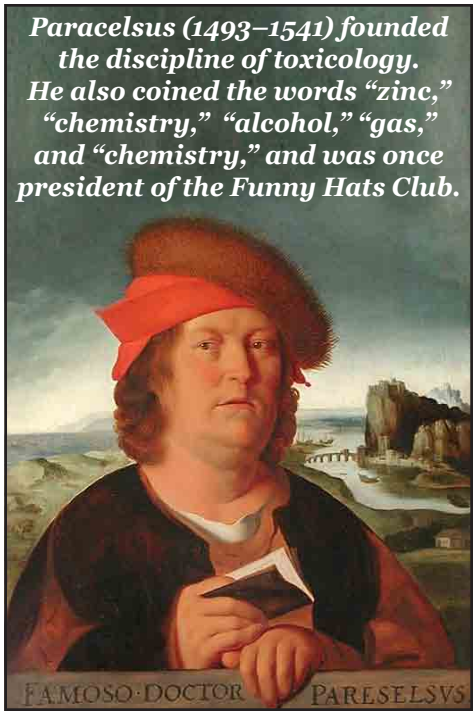
Generic name — the United States Adopted Names (USAN) selects a name for a particular drug.

Trade name – the drug company selling the product selects this name, *aka* proprietary or brand name.

Pharmacology, as a science, has many subcategories which combined help us to understand the general principles of how a drug actually works.

Pharmacokinetics deals with a drug's actions as it is absorbed into, distributed to, metabolized within, and excreted from a living organism. It also deals with the drug's onset of action, peak concentration level, and duration of action. Drugs can be described as any substance that brings about a change in biologic function through its chemical actions. In most cases the drug molecule interacts as an agonist (activator) or antagonist (inhibitor) with a specific receptor in the biologic system. Receptors can be used to describe any target molecule which the drug molecule has to combine with to cause an effect.

Drug absorption is a drug's progress from its pharmaceutical dosage form to a biologically available substance that can then pass through or across tissues. With oral medications — for instance, a tablet or capsule disintegrating in the stomach or intestines — enough fluid must be available for absorption to occur, hence the usual instruction to take with eight ounces of liquid. Syrups and suspensions occur in dosage form as solutions; their progress from drug administration to drug absorption is more rapid, leading to a quicker onset. Parenteral drugs, those designed to be given intravenously, subcutaneously, intramuscularly or mucosal, have fewer variables for release of the drug into the system. These are liquid solutions for direct entry into the circulatory system, therefore they do not pose absorption problems, and these drugs rapidly become available to the target tissue. Differences in absorption do occur depending on the site selected; intravenous (IV) administration requires no absorption time ... intramuscular (IM) and subcutaneous (SC) do.



Paracelsus (1493–1541) founded the discipline of toxicology. He also coined the words "zinc," "chemistry," "alcohol," "gas," and "chemistry," and was once president of the Funny Hats Club.

Passive transport requires no cellular energy, and drugs move from an area of higher concentration to lower concentration. This occurs when small molecules cross membranes or pass through pores. Diffusion (the movement from high to low) ceases when drug concentration on both sides of the membrane is equal. Active transport requires cellular energy to move the drug from an area of lower concentration to one of higher concentration.

Pinocytosis is a form of active transport that occurs when a cell engulfs a drug particle. The cell forms a vesicle for drug transport across the cell membrane and into the inner cell. Fat-soluble vitamins like A, D, E and K are most common.

Blood flow: Absorption also depends on adequate circulation to bring the drug to the absorption site. The better the blood flow is, the more rapid the rate of absorption. The more rapid the absorption is, the quicker the onset of the drug action.

Pain and stress can reduce the amount of drug absorbed. The exact cause remains unknown; it probably results from a decrease in blood flow to vital organs that are triggered by the autonomic nervous system.

Drug solubility: The solubility of a drug must match the cellular make-up of the absorption site. Lipid-soluble drugs penetrate fat-containing cells; water-soluble cannot. A water-soluble drug cannot penetrate the highly lipoid cells that act as barriers between the blood and brain. A highly lipid-soluble drug, such as thiopental or Propofol, can penetrate the lipoid cells, cross into the brain, and induce anesthesia.

Drug interactions: Combining one drug with another drug can cause interactions that affect absorption.

Drug metabolism: Refers to the body's ability to change a drug from its dosage form to a water-soluble form, allowing the renal system to excrete it. Through metabolism, the body disposes of the drugs as it would toxins since the drugs are foreign to it. Keep in mind that there may be circumstances that affect metabolism and this could potentially lead to drug toxicity.

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Drug Excretion: Drugs are eliminated by excretion (renal) or metabolism (hepatic). Drugs can be eliminated through the lungs; sweat, salivary or mammary glands; kidneys; liver; skin; and intestinal tract.

Half Life: To predict how often a medication should be given, you must determine how long a drug will remain in the body. Half life is the time required for the total amount of a drug to diminish by one half. This is determined from a drug concentration-time curve.

Clearance: Refers to removal of a drug from the body. A low clearance is removed slowly; one with a high clearance is removed rapidly. The frequency of administration is determined by its clearance rate.

Onset, peak and duration: The onset of action refers to the time when the drug has reached an effective blood level, for a therapeutic response. The peak concentration level is reached as the body absorbs more drug, the blood level rises as more of the drug reaches the site of action eliciting a therapeutic response. As the drug circulates in the blood, it begins to be eliminated. The blood concentration begins to fall and the action begins to diminish. The duration of action is the length of time that drug concentration is sufficient to produce a therapeutic response.

Now that there is a better understanding of the basic terms used in anesthesia pharmacology and the delivery of anesthetic drugs, let's look at the drugs used most often in our profession.

Barbiturates, Benzodiazepines, Opioids and Analgesia

Many of the anesthetics used today are delivered intravenously (IV). Several drugs are used, alone or in combination with other drugs. These drugs are used to achieve an anesthetic state and for procedural sedation. When we use medications in anesthesia, most commonly our goal is to achieve an anesthetic state. Anesthesia is described as a condition of amnesia, lack of anxiety, and physiological stability in a patient before, during and after performance of a procedure.

The goal of general anesthesia for a surgical procedure is to render the patient unconscious, unaware and unresponsive to painful stimuli. Anesthesia also provides analgesia and muscle relaxation utilizing drugs that make anesthesia safer and more pleasant.

In order to reach the desired anesthetic state, the medications are given in a specific order. As a patient moves through these various stages additional medications are given.

The stages of anesthesia are as follows:

I ~ Stage of Analgesia: Patient initially experiences analgesia without amnesia. Later in Stage I both analgesia & amnesia is produced.

II ~ Stage of Excitement: During this stage the patient appears to be delirious & excited, but amnesic. Volume & rate of respiration may be irregular & patient may struggle. Goal is to get patient through this stage quickly.

III ~ Stage of Surgical Anesthesia: Regular respiration returns and progresses to cessation of spontaneous respiration. There are changes to ocular movement including eye reflexes & pupil dilatation.

IV ~ Stage of Medullary Depression: Includes severe depression of the vasomotor center in the medulla and respiratory center, without circulatory and respiratory support death occurs rapidly.

The majority of the patients in the operating room receive pre-operative medication(s). These medications are given to begin amnesia and occasionally for anesthesia, if the patient is experiencing pain in addition to anxiety. Pre-operative medications are given as a component of balanced anesthesia to facilitate induction.

Usually the drugs given are benzodiazepines. Benzodiazepines are a group of chemically similar psychotropic drugs with potent hypnotic and sedative action. These are given mainly as anti-anxiety and sleep inducing medication. Side effects may include impaired psychomotor ability, amnesia and euphoria.

We most commonly use Midazolam (Versed). Besides pre-operative medication, it is often used before short diagnostic procedures and sedation in the ICU. The benefits of using Midazolam are: anti-anxiety, amnestic, sedative, hypnotic, muscle relaxation, minimal analgesic effect, and anticonvulsant. If given IV, the onset of effect is in 1–2 minutes; the duration is 20–50 minutes. The dose should be customized to meet the needs of the patient; usual dose is 2–5 mg, given slowly over two minutes. The effect of Midazolam can be prolonged in patients with cirrhosis, obesity and old age.

Induction agents are given to induce anesthesia. Medications commonly used are barbiturates like thiopental or methohexital, however thiopental is no longer produced in the U.S. and methohexital is commonly used for a patient with whom you want to avoid a rise in blood pressure. Barbiturates are a group of

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organic compounds that are used to treat and prevent convulsions, relieve anxiety and aid sleep. Side effects include drowsiness, depressed respirations, decreased blood pressure and decreased body temperature.

Thiopental (Pentathol) is an ultra-short-acting barbiturate used as an anesthesia induction agent or hypnotic. It is a poor analgesic and may elicit histamine release. Induction dose IV: 3–5 mg/kg with onset in 5–20 seconds; duration is 15-30 minutes. Seldom used in U.S. due to inaccessibility.

Methohexital (Brevital) is an ultra-short-acting barbiturate used as an anesthetic for short surgical procedures or to supplement other anesthetics. Induction dose IV: 50–100 mg (70 mg average); 1–1.5 mg/kg is the usual adult dose. Onset is in 30–60 seconds; duration is 5–15 minutes. Adverse effects are circulatory depression, cardiac arrhythmias, respiratory depression, nausea and vomiting. Methohexital also increases intracranial pressure (ICP). It is not compatible with atropine, succinylcholine or lactated ringers.

Most commonly used in the OR and for sedation is propofol (Diprivan). This medication is a non-barbiturate sedative used to induce and maintain anesthesia. It can also be used for IV sedation long- or short-term. It has a quick onset of 30 seconds and duration of 3–20 minutes with rapid awakening and a recovery time of 0.5–1.5 hours. Additional benefits include antipruritic and antiemetic properties; however, propofol offers no analgesic effect. Propofol contains egg and soy, so caution should be used when administering to patients with these allergies. Prolonged exposure time should be avoided once propofol is drawn from original container.

Ketamine (Ketalar) is a dissociative anesthetic used for IV general anesthesia. It is closest to a complete anesthetic, used for induction and maintenance with patients who are hypovolemic or high risk. It can also be used for very short surgeries or procedures. It offers multiple effects, including amnesia and profound analgesia, blocking of polysynaptic reflexes in the spinal cord, inhibiting of excitatory neuro-transmitters in selected areas of the brain, and dissociation of the thalamus. Emergence can be difficult, including disturbing dreams, hallucinations, nausea and vomiting. The anesthesia technologist or technician should be in the room for emergence to assist with this stage. Ketamine is a cerebral vascular dilator; therefore, increases ICP, hypertonus (muscle spasm) and nystagmus (eyes turned outward or in a fixed gaze). It also stimulates the sympathetic nervous system increasing heart rate, cardiac output, blood pressure and increased salivation. Avoid in patients with cardiac disease and glaucoma patients due to increased intraocular pressure. Ketamine is also used for trauma patients, since it relaxes smooth muscles. Onset given IV is 2–5 minutes and the duration is 5–15 minutes. IM onset is 3–8 minutes and duration is 15–25 minutes.

Opioids are any synthetic narcotic not derived from opium. Opiods can be compared to endorphins that occur naturally in the body and acts on the brain to decrease pain (analgesia).

Commonly used in the OR is fentanyl. Fentanyl is a narcotic, analgesic which acts on opioid receptors in the central nervous system. IV onset is very rapid; duration is 30–60 minutes. Fentanyl causes respiratory depression, apnea, sedation, chest wall rigidity, and itching.

Less often used is morphine (Duramorph). It is an opioid agonist which is used as a premedication for analgesia, and as a treatment for pain with myocardial ischemia associated with left ventricle failure and pulmonary edema. The dose varies depending on intended use. For analgesia administered intravenously, 2.5–15 mg; for IV induction, 1 mg/kg with IV. Onset is almost immediate and the duration is 2–7 hours. As an epidural bolus: 2–5 mg and as an epidural infusion, 0.1–1 mg/hour. For use as spinal the dose is 0.1–0.2 mg/

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kg. Onset for epidural and spinal is 1–60 minutes with a duration of up to 24 hours. Adverse effects include hypotension, hypertension, bradycardia, chest wall rigidity, arrhythmias, bronchospasm, laryngospasm, nausea and vomiting. The dose should be reduced with patients who are elderly, hypovolemic or in labor (crosses the placental barrier), resuscitation of neonate may be required. Naloxone (opiod antagonist) is the reversal drug for morphine.

Remifentanil (Ultiva) is a more potent opiate analgesic for perioperative use. Dosage is by infusion only. For induction the dose is 0.5–1 mcg/kg/minute. Maintenance dose is 0.05–0.8 mcg/kg/minute and for postop pain 0.025–0.2 mcg/kg/minute. Onset is in 1–5 minutes and the duration is according to the continuous infusion, since the effect stops 5–15 minutes after infusion is stopped.

Alfentanil (Alfenta) is an opioid agonist (stimulates the receptors so opioid effect is greater). Alfentanil produces analgesia and anesthesia, it is used for perioperative analgesia. Dose for IV induction is 50–150 mcg/kg. Onset is in 1–2 minutes and duration is 1–15 minutes. For continuous infusion the dose is 0.1–3 mcg/kg/minute. The dose is reduced in elderly, hypovolemic or patients using sedatives or other narcotics. Alfentanil crosses the placental barrier, so could cause respiratory depression in neonates.

Sufentanil (Sufenta) is also an opioid agonist that produces analgesia and anesthesia. It is also used for perioperative analgesia. Dose for IV induction is 2–10 mcg/kg, the onset is immediate, and the duration is 20–45 minutes. Continuous infusion is 0.01–0.05 mcg/kg/minute. The epidural dose is 0.2–0.6 mcg/kg and spinal is 0.02–0.08 mcg/kg. The onset for epidural and spinal is 4–10 minutes and duration is 4–8 hours.

General anesthesia, 300,000 B.C – 1846

Additional drugs used for induction and sedation includes Etomidate (Amidate), a non-barbiturate hypnotic used for induction of general anesthesia. The main benefit of Etomidate is the minimal cardiovascular effect on cardiac output, pulmonary and peripheral circulation. It is a good medication for patients with whom it is important to avoid a rise in blood pressure. Etomidate also lowers ICP, and does not release histamine. It is a poor analgesic and has amnesic properties. The dose IV is 0.2–0.3 mg/kg when administered over 30–60 seconds. Onset is 30-60 seconds and the duration is 3–10 minutes.

Droperidol (Inapsine) is used for its potent antiemetic and sedative properties. When droperidol is administered in a potent enough dose, its antiemetic effect is extremely sedative. It was extensively used for post-operative nausea and vomiting, and in conjunction with benzodiazepines and opioids as a preoperative medication. Droperidol may prolong the QT interval, rarely resulting in fatal episodes of ventricular tachycardia. Droperidol should not be used in patients with a history of QT prolongation and should only be used in patients who have not responded to other treatments (seldom used).

Dexmedetomidate (Precedex) is an adrenergic agonist sedative hypnotic which is used as an off-label adjunct to anesthesia. This medication should only be administered using a controlled infusion device. Adult loading dose: 1 mcg/kg over 10 minutes, followed by a maintenance infusion of 0.2–0.7 mcg/kg/hr. Onset is in 10–30 minutes depending on dose. Duration is 15 minutes to four hours, depending on dose and duration of infusion. Patients receiving Dexmedetomidate should be continuously monitored. Hypotension bradycardia, nausea, vomiting and fever have been reported. It is used as an adjunct to general and regional anesthesia. It supplements a regional block when respiratory depression must be avoided as in a craniotomy.

This is a basic overview of medications that are commonly used in current anesthesia practice. There are many other medications in a variety of categories that you may see in practice. If you are not familiar with them, there are many more resources available. S

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PHARMACOLOGY FAQ

What is the difference between sedation and anxiety relief?

Sedative reduces anxiety and exerts a calming effect with minimum CNS depression. A hypnotic drug should induce drowsiness and encourage the onset and maintenance of sleep. Increased dose of medications such as benzodiazepines and hypnotic sedatives can lead to an anesthetic level of sedation.

Which patients are most likely to benefit from preoperative medication?

Prior anesthesia experiences/surgery, history of anxiety, drug abuse.

Do all patients require preoperative medication?

Depends on the patient and the type of anesthetic to be given. Preoperative visits are good and may be sufficient to relax a patient. It may be better that some patients not receive: elderly, decreased level of conscientiousness, intracranial pathology, severe pulmonary disease, hypovolemia.

Does preoperative medication influence the induction of general anesthesia?

Sedative and hypnotic combinations are ideal for preparing and maintaining anesthesia for GA; rather than a one-drug method, patients wake up more relaxed.

Which factors must be considered in selecting the anesthetic premedication for this patient?

Type of procedure, level of anxiety, pre-existing diseases, age, tolerance to meds, drug allergies, elective vs. emergency surgery, inpatient vs. outpatient surgery.

What are the goals of administering preoperative medication?

Relief of anxiety, induce drowsiness, amnesia, analgesia, component of balanced anesthesia (facilitates induction).

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Prices guaranteed until July 8, 2013, based on availability.

REGISTRATION FORM

Registration Type	Early Bird thru April 30	May 1 thru June 15	June 16 thru July 14	July 15 thru August 2	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? ☐ Yes ☐ No *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.

Full Name_____ Nickname for name badge (if different) _____

Employer/Affiliate of _____

Home Address _____

City_____ State_____ ZIP Code _____

Work Phone_____ Work Fax_____ Email _____

PAYMENT INFORMATION

☐ **Check** ☐ **Visa** ☐ **MasterCard** ☐ **Discover** ☐ **American Express**

Card Number_____ **Exp. Date**_____ **Sec Code (CVV)**_____

Cardholder's Signature_____

Full Name (as it appears on card) _____

Address (if different than above) _____

City_____ State_____ ZIP Code _____

Work Phone_____ Work Fax_____ Email _____

REFUND POLICY

Cancellations made by June 15, 2013, will receive full refund. Cancellations made June 16 through July 16, 2013, will be penalized 50% of the registration fee. Cancellations made on or after July 17, 2013, will receive no refund.

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

American Society of Anesthesia Technologists and Technicians
7044 South 13th Street • Oak Creek, WI 63154
414/908-4942, ext. 450 • Fax: 414/768-8001
www.ASATT.org

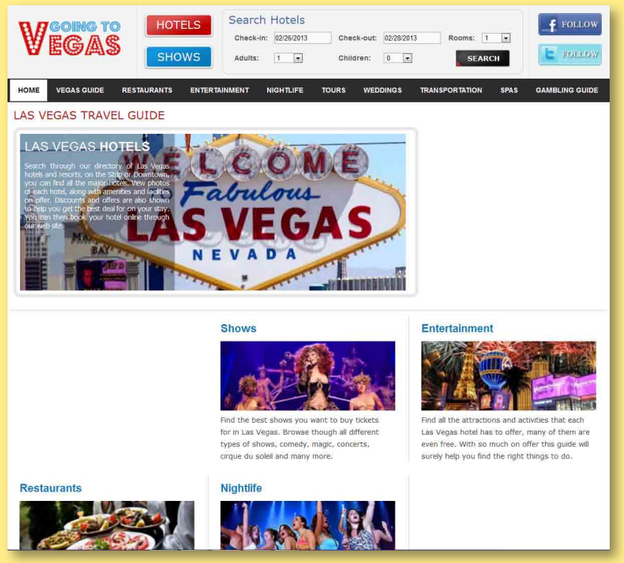
Please note that membership dues are not included in the Conference registration fee and are invoiced separately.

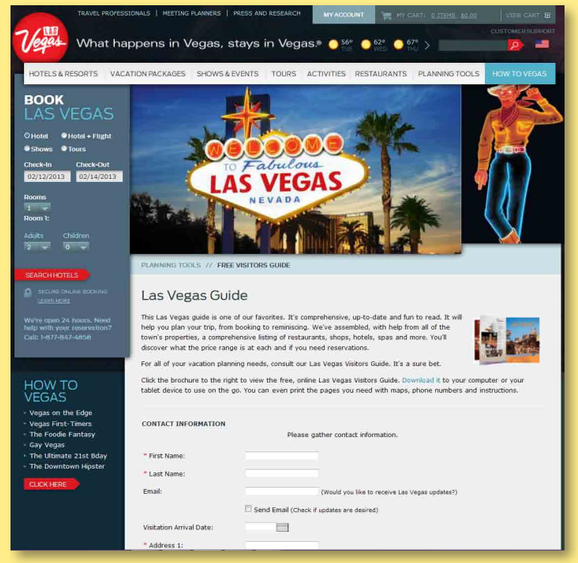
American Society of Anesthesia Technologists and Technicians

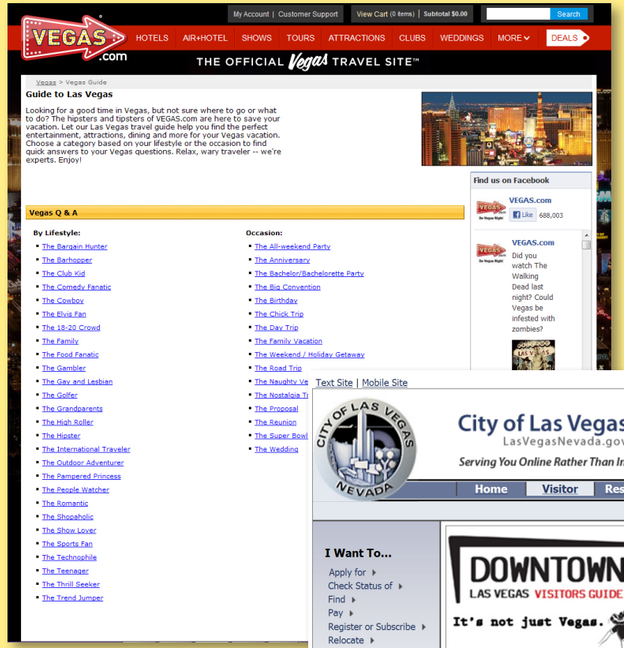
Education Conference

August 8-10, 2013

Las Vegas, NV • Flamingo Hotel







Above left: **THINGS TO DO IN LAS VEGAS**

www.goingtovegas.com

Above: **FREE VISITORS GUIDES**

www.lasvegas.com/planning-tools/free-visitors-guide/

Left: **FREE TRAVEL TIPS**

www.vegas.com/traveltips/

Below: **OFFICIAL VISITORS SITE**

featuring PDF files containing street maps and useful information about entertainment, shopping and transportation

www.lasvegasnevada.gov/Visitor/default.htm

The American Society of Anesthesia Technologists & Technicians is not responsible for the content found at these websites. These links are meant for informational purposes only.

24th Annual ASATT Educational Conference

Flamingo Hotel – Las Vegas, Nevada

August 8–10, 2013

SCHEDULE OF EVENTS

Schedule is subject to change — please keep checking the ASATT website for updates.

Thursday, August 8, 2013

6:00 – 8:00 pm ..... Registration and Reception

Friday, August 9, 2013

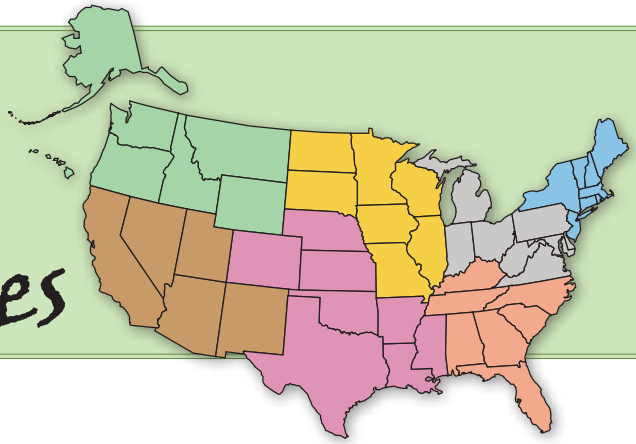
7:00 – 8:15 am..... Registration Breakfast and Vendors
8:15 – 8:30 am..... Welcome and Announcements
8:30 – 9:30 am..... Jeremy Heiner – *Massive Transfusion Protocol*
9:30 –10:30 am ..... Dina Velocci – *Trauma: Current Issues in Anesthesia*
10:30 – 11:00 am ..... Break / Vendors
11:00 am – noon..... Garry Brydges, CRNA – *Neurosurgery and an Anesthetic Plan During Awake Craniotomy*
noon – 1:00 pm ..... Lunch / Vendors
1:00 – 2:00 pm ..... Lisa Haas – *Standardized Anesthesia Technology Education*
2:00 – 3:00 pm ..... Brian Galle – *Non-Invasive Monitoring in the Anesthesia Setting: An Overview*
3:00 – 3:30 pm ..... Break / Vendors
3:30 – 4:30 pm ..... John Rivera – *Autotransfusion During Massive Transfusion and Trauma*
4:30 – 5:30 pm ..... Michael Boytim / Vicki Reyes – *Testing Accreditation and the Technologist Profession*

Saturday, August 10, 2013

7:00 – 8:15 am..... Registration Breakfast and Vendors
8:15 – 8:30 am..... Welcome and Announcements
8:30 – 9:30 am..... Paul Myers, CRNA – *Maximizing Patient Outcomes During Major Orthopedic Procedures: A Team Model*
9:30 –10:30 am ..... Sass Elisha – *Diversity and Cultural Awareness*
10:30 – 11:00 am ..... Break / Vendors
11:00 am – noon..... Jennifer Thompson, CRNA – *Anaphylaxis*
noon – 1:00 pm ..... Lunch / Annual Business Meeting
1:00 – 2:00 pm ..... John Shields – *Ventricular Assist Devices*
2:00 – 3:00 pm ..... John Frazier, RN – *Perioperative Goal Directed Therapy*
3:00 – 3:30 pm ..... Break
3:30 – 4:30 pm ..... Sarah Goss, CRNA, MS – *Perioperative Fluid Management*
4:30 – 5:30 pm ..... Regional Meetings

The conference is currently approved for 10 Category I CEs and 3 Category II CEs

ASATT Regional Activities



REGION 1

CT–ME–MA–NH–NJ–NY–RI–VT
Director: Jonnalee Burgess, Cer.A.T.
Work: 603/650-6804 or 603/252-8963
Email: region1director@asatt.org

I want to personally thank Joyce Freeman along with SUNY Upstate Medical Center for hosting the meeting on May 18th in Syracuse, New York. I also want to thank the anesthesiologists and CRNAs and various other staff for all of their kindness, generosity and help as well for donating their time to lecture to the group. Thank you to the vendors as well. It was a great meeting. We had a total of 29 attendees and five vendors. We also want to make special mention to the vendors ... as we all know, if it were not for them, these meetings would not be possible.

The speakers were: Colleen O'Leary, MD, *Invasive Hemodynamic Monitoring;* Sarah Stuart, MD, *Difficult Airway Techniques and Equipment;* Nancy Nusmeier, *General Anesthetics;* Sheldon Issacson, MD, *Regional Blocks, Pain Management & Supplies;* Carlos Lopez, MD, *Difference between an Anesthesia Machine and ICU Ventilator;* Marenea Roule, CRNA, *Maintaining the Pediatric Airway: OR, Out of OR Locations, and Associated Risk;* Judy Kilpatrick, RN, MS, NP, CCNS, *Sepsis.*

Very Special *Thank You* to JoAnn Bloc, Jamal Williams, Amanda Riegel, Jenny Deng, and Yki Orr for helping Joyce with some of the ancillary work that was necessary for the success of the meeting.

I find it hard to believe that our National Meeting in Las Vegas is less than a month away. It's not too late to register (see page 12)! It's August 8–10 at the Flamingo Hotel directly on the Strip. Bring your spare change to see if you can be a lucky winner. Hope to see you in Vegas!

American Society of Anesthesia Technologists and Technicians
Education Conference
August 8-10, 2013
Las Vegas, NV • Flamingo Hotel

REGION 2

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

Greetings Region 2 members!

Summer is here. I hope everyone is staying cool. By now everyone should be aware election time is upon us — it's time to elect a new President and Regional Directors. It's also time to nominate someone for the Education Award. You don't have to be elected to join one of the committees, so log in at **www.ASATT.org** and see where you want to serve. Please don't forget our Educational Conference is fast approaching — August 8–10 in Las Vegas. Plans are still being made for a second regional meeting in October so stay tune for more details. Some Region 2 members will be recertifying this year. I encourage you to visit our website and look under the recertification guidelines to see what falls under category 1 and category 2. Please don't hesitate to call and or email me.

REGION 3

AL–FL–GA–KY–NC–SC–TN
Interim Director: Sue Christian, Cer.A.T.T.
Work: 615/343-7077 • **Fax:** 615/343-1966
Email: region3director@asatt.org

Hello Region 3 members!

I would like to thank all of the technologists and technicians for their continued support of ASATT with their attendance at the Regional Meeting held at Vanderbilt University Medical Center on May 18th. We would also like to offer special thanks to the speakers who took time away from their families to present some very interesting topics. Dr. Amy Robertson spoke on abdominal and thoracic TAAs; Dina Velocci, CRNA, lectured on anesthesia considerations for the burn patient; John Shields, CRNA, spoke on transcatheter aortic valve replacement; Alicia VanBebber lectured on extracorporeal technology; Dr. Berry spoke on waste anesthesia gas systems; Dr. Bick presented a lecture that covered blood and coags in cardiac

MORE

continued from page 15

surgery; and Sue Christian, Cer.A.T.T., ended the conference by updating those in attendance on the changes and advancements of the anesthesia technician profession. The conference offered six CI CEs & one CII CE. Special recognition needs to be extended to Julie Kapelan, Cer.A.T., who secured the speakers and topics for the meeting, and Tonia Rozell, Cer.A.T., for planning and arranging the breakfast and lunch menu.

Over the course of the last several years, Region 3 has had two educational conferences. This year will be no different; a second meeting is currently being planned for November 9th at Huntsville Hospital, Huntsville, Alabama. As soon as topics and speakers are confirmed, we will post the registration form on the website. We are planning for 7 CI CEs.

Lastly, my term as Regional Director is coming to an end. I appreciate the opportunity to serve those members and non-members within our Region and will make every effort to provide a smooth transition with the new Regional Director. To those of you who continue to nominate me for various board positions, I appreciate your continued support. I hope to see many of our members in Las Vegas!

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

Greetings, Region 4 members! Where is 2013 going? I can't believe we are well over halfway through the year. We had our Regional meeting in April, and next up — Las Vegas! Everyone should have received an email regarding the Anesthesia Technology Education Program and Review that will follow our general meeting to be held Sunday, August 11. This is being presented by West Coast Anesthesia and up to 8 CEs will be offered for attending. This is to provide current updates for exam review, and the cost is $160. Contact www.SMVInc.biz for more information and to sign up. This should be very beneficial to gain more knowledge in the field of Anesthesia or for those planning to take the Certification Exam by July 2015, or just to get extra CEs. Remember to start getting those CEs in order if you need to recertify at the end of this year so you don't have to hurry in December and find a way to get a few extra ones. And I hope to see many of you in Las Vegas in August at our National Meeting!

REGION 5

AR–CO–KS–LA–MS–NE–OK–TX
Director: Charlene Koch, Cer.A.T.
Work: 720/777-6207
Email: region5director@asatt.org

Hello Region 5 members! I hope you are all having a happy and safe summer!

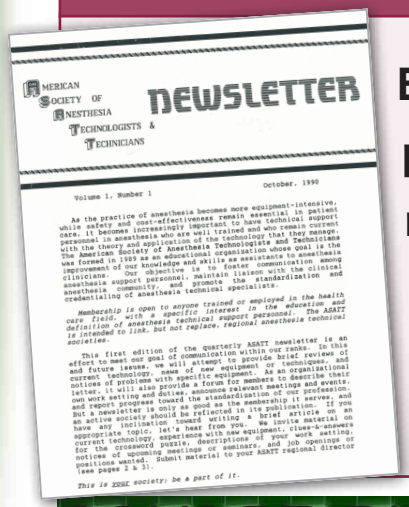
Region 5 had a very successful conference here in Denver in April. It was a lot of fun and we experienced some great education. MD Anderson hosted a great conference in Houston.

Are you planning to attend the National Conference in Las Vegas? I hope to see you there. I look forward to having many Region 5 attendees!

Education ... it truly is about education. We constantly need to be looking for new opportunities to educate ourselves. A great anesthesia tech is a well-educated anesthesia tech. It is hard for any provider to look for help from someone whose answer is always, "I don't know." A strong anesthesia tech is someone who can be an amazing resource, who can locate equipment at a moment's notice, someone who can open an anesthesia workstation and grab supplies quickly. A strong anesthesia tech is someone who is up-to-date on new supplies or new equipment, someone who doesn't wait to be shown how to use

MORE

DID YOU KNOW?


AMERICAN SOCIETY OF ANESTHESIA TECHNOLOGISTS & TECHNICIANS
NEWSLETTER
Volume 1, Number 1 October, 1990

As the practice of anesthesia becomes more equipment-intensive, while safety and cost-effectiveness remain essential in patient care, it becomes increasingly important to have technical support personnel in anesthesia who are well trained and who remain current with the theory and application of the technology that they manage. The American Society of Anesthesia Technologists and Technicians was formed in 1989 as an educational organization whose goal is the improvement of our knowledge and skills as assistants to anesthesia clinicians. Our objective is to foster communication among anesthesia support personnel, maintain liaison with the clinical anesthesia community, and promote the standardization and credentialing of anesthesia technical specialists.

Membership is open to anyone trained or employed in the health care field, with a specific interest in the education and definition of anesthesia technical support personnel. The ASATT is intended to link, but not replace, regional anesthesia technical societies.

This first edition of the quarterly ASATT newsletter is an effort to meet our goal of communication within our ranks. In this and future issues, we will attempt to provide brief reviews of current technology, news of new equipment or techniques, and notices of problems with specific equipment. As an organizational letter, it will also provide a forum for members to describe their own work setting and duties, announce relevant meetings and events, and report progress toward the standardization of our profession. But a newsletter is only as good as the membership it serves, and an active society should be reflected in its publication. If you have any inclination toward writing a brief article on an appropriate topic, let's hear from you. We invite material on current technology, experience with new equipment, close-ups of your work setting, for the crossword puzzle, descriptions of job openings or notices of upcoming meetings or seminars, and job openings or positions wanted. Submit material to your ASATT regional director (see page 2 & 3).

This is YOUR society; be a part of it.

Every issue of *The Sensor* since it was first published in 1990 (left) is available for your review by logging into the Members Only section at www.ASATT.com and click on the link, "Sensor Archives." You're welcome to download and print them, too!

continued from page 16

the new equipment, but researches that equipment and learns about it as soon as possible so they can be a strong resource. A strong anesthesia tech is someone who realizes that it has been a very long time since they have set up a certain piece of equipment and set it up to "practice."

I constantly push education because it really is the best way to make yourself a better tech. Your growth is in your hands.

Best wishes to everyone!

REGION 6

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

Hello Region 6! We are growing strong as a Region, all together! Thanks for everything, members. I have plans for an anesthesia conference in October; I have made plans with reps already! I hope to have more details at the national conference. Speaking of the national conference, I really hope to see a good turnout out for our Region since we are hosting it in OUR Region! Stay safe and enjoy yourselves.

REGION 7

AK–HI–ID–MT–OR–WA–WY
Director: Joleen Bishop, Cer.A.T.
Work: 206/223-2391
Email: region7director@asatt.org

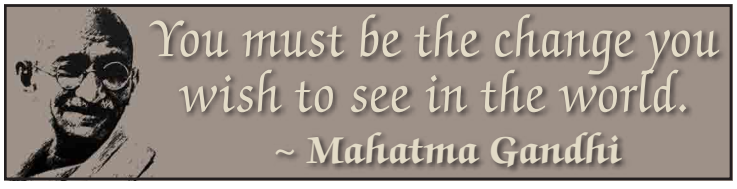
Greetings Region 7.

I hope this summer is finding you all well. We are well into an exciting year and approaching our Annual Education Conference. I hope you find the time to attend what will be a first for us in Las Vegas. It is sure to be a memorable collaboration between ASATT and the AANA.

I would also like to remind everyone that Delbert will be hosting a second Regional meeting in Hawaii this September. If you are interested in hosting a meeting this year, please contact me so we can again make a third Regional meeting happen in 2013.

Finally, I have really appreciated the opportunity to act as your Region 7 Director these past two years. It has truly been an educational experience. Please be sure to vote for your incoming Director and continue to be engaged in our profession. Thank you for allowing me to be part of something amazing and be part of our change.

Peace.

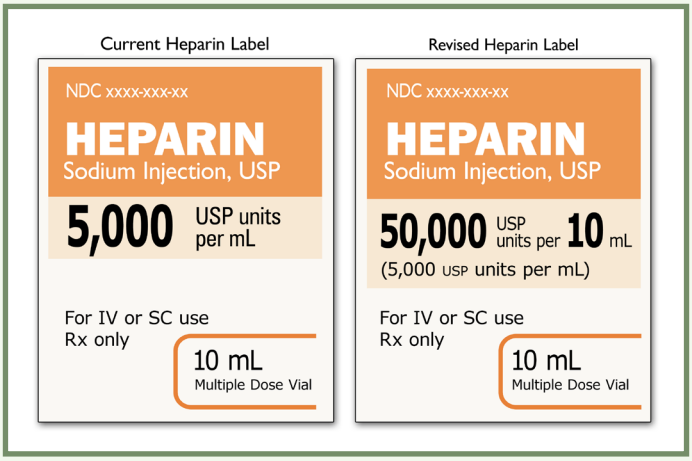


ALERT: Label Update!

The Institute for Safe Medication Practices released a NAN Alert on June 10, 2013, regarding the recently updated labeling standards by the U.S. Pharmacopeial for **Heparin Sodium Injection, USP** and **Heparin Lock Flush Solution, USP** (including prefilled heparin flush syringes).

ISMP
INSTITUTE FOR SAFE MEDICATION PRACTICES

Labeling of the total amount of drug per vial is now required, rather than the per mL amount with the container volume appearing elsewhere on the label. Previous labeling was somewhat confusing which resulted in some practitioners overlooking the container volume and misunderstanding the per mL amount as the total amount in the vial (See photo.) This has led to dangerous heparin overdoses.



Old vs. new labeling of heparin injection labels.

The CE Quiz in the last issue — the Spring 2013 issue — of *The Sensor* contains one itty-bitty boo-boo. Even though it's in the SPRING issue, the clip-out mail-in form at the bottom still says it's the WINTER issue. If you haven't sent that one in yet, and still intend to . . . *don't let this confuse you!* (Oops!)

Are you short CEs?

West Coast Anesthesia

Anesthesia Technology Education Program and Review

Sunday, August 11, 2013

Immediately following the ASATT General Meeting!

Web-based sign-up to attend class is at https://www.smvinc.biz

This will be a one-day workshop employing best practices from experienced instructors that will provide current updates for practice* and exam review.

We look forward to meeting you in Las Vegas!

*Approved for up to 8 ASATT Category I CEs

Cost for Attendance: $160

Do you need help with preparing for the certification exam?

U.S.News & WORLD REPORT

The U.S. News and World Report recently released the 2013 Honor Roll for Best Hospitals. The ranking this year are:

Johns Hopkins Hospital, Baltimore
Massachusetts General Hospital, Boston
Mayo Clinic, Rochester, Minnesota
Cleveland Clinic
UCLA Medical Center, Los Angeles
Northwestern Memorial Hospital, Chicago
New York–Presbyterian University Hospital of Columbia and Cornell, N.Y.
UCSF Medical Center, San Francisco
Brigham and Women's Hospital, Boston
UPMC–University of Pittsburgh Medical Center
Hospital of the University of Pennsylvania, Philadelphia
Duke University Medical Center, Durham, N.C.
Cedars-Sinai Medical Center, Los Angeles
NYU Langone Medical Center, New York
Barnes-Jewish Hospital/Washington University, St. Louis
IU Health Academic Health Center, Indianapolis
Thomas Jefferson University Hospital, Philadelphia
University Hospitals Case Medical Center, Cleveland

Congratulations to those technicians whose hospital made the coveted list!

POSITION DESCRIPTIONS FOR
ASATT Board of Directors

HAVE YOU EVER WONDERED exactly what the responsibilities are of the individual Board members? Here is a simple overview of the "position descriptions" of the Board of Directors.

Regional Directors — Two-year term

- Responsible for organizing at least one yearly meeting and in some situations, two. This includes obtaining speakers, selecting locations and obtaining sponsors. The Regional Director is financially accountable for operating within the budgeted funds for the regional meeting. They are also responsible for providing an outline of the meeting to ASATT for distribution and sending ASATT a final list of attendees to facilitate awarding of CEs.
- Responsible for promoting the Annual Educational Meeting within the Region with both vendors and members.
- Responsible for attending the Annual Educational Meeting.
- Assisting with registration, sales, etc., during the Annual Meeting.
- Assist with the ASA booth, if needed.
- Responsible for participating in all Board activities, to include:
  - Attending all Board meetings.
  - Participating in all Board conference calls. (Usually every other month on a Saturday morning.)
  - Responding to all e-mails when questions/opinions are solicited.
  - Submitting monthly, quarterly and yearly reports for your Region and/or committees to the President.
  - Submitting ***Sensor*** and Website updates by the date requested.
  - Participate in the yearly budget process for the Region's activities.

President-Elect — Three-year term

- Communicating directly with the ASATT President.
- Assuming the responsibilities of the President when necessary.
- Being familiar with the Bylaws, Policy and Procedure manual and the working of all committees.
- Succeeding the President at the end of his/her term.
- Co-chairing the Annual Educational Meeting, to include taking care of the ASA booth (set-up, staffing and break-down).
- Chairing the Communications Committee.

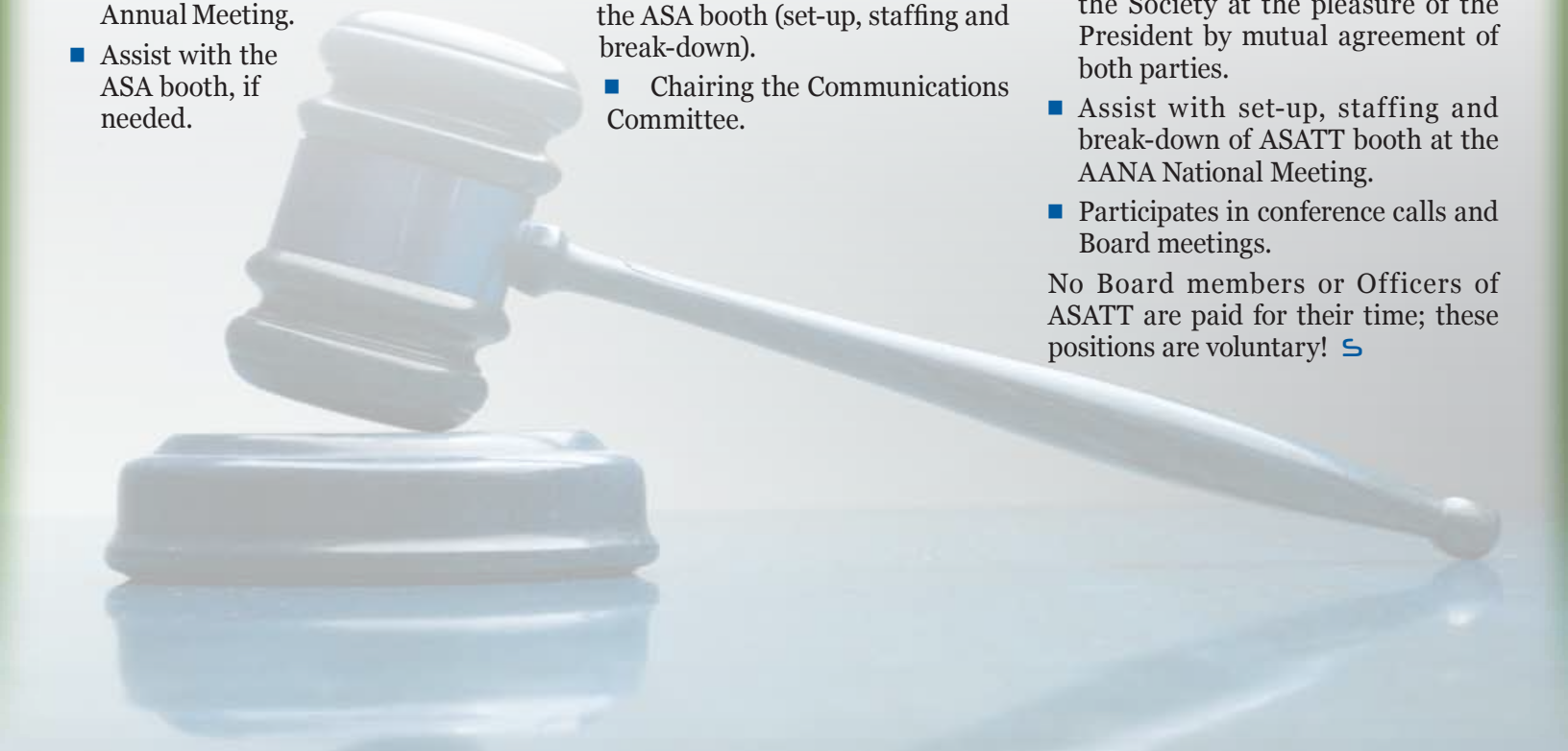
President

- Handles daily Society business as required.
- Presides at all Society membership, Board of Directors and Executive Committee meetings.
- Responsible for co-signing all negotiated contracts on behalf of the Society.
- Fiscally responsible for operating the Society's business within the approved budget.
- Prepares agendas for Board business.
- Co-Chairs the Annual Educational Meeting, to include taking care of the ASA booth (set-up, staffing and break-down).
- Responsible for set-up, staffing and break-down of ASATT booth at the AANA National Meeting.

Immediate Past-President — One-year term

- The Immediate Past-President shall serve as a member of the Board and Chairperson of the Nominations Committee.
- The Immediate Past-President shall fulfill various other duties for the Society at the pleasure of the President by mutual agreement of both parties.
- Assist with set-up, staffing and break-down of ASATT booth at the AANA National Meeting.
- Participates in conference calls and Board meetings.

No Board members or Officers of ASATT are paid for their time; these positions are voluntary!



LogoWear Order Form

7044 South 13th Street, Oak Creek, WI 53154-1429
414/908-4942 Fax: 414/768-8001 www.asatt.org asattinfo@asatt.org

ALL WEARABLES ARE MACHINE-WASHABLE

Full-Zip Hooded Sweatshirt — ash with embroidered ASATT logo

_____Small _____Medium _____Large _____X-Large ..... $36 $_____

_____XX-Large _____XXXL ..... $38 $_____

Short-sleeve T-shirt — khaki with ASATT logo

_____Small _____Medium _____Large _____X-Large ..... $16 $_____

_____XX-Large ..... $18 $_____

Baseball Cap — khaki with ASATT logo embroidered on front (one size fits all) ..... $15 $_____

Lunch Bag — black with ASATT logo ..... $10 $_____

16-oz. Double-Wall Tumbler — with ASATT logo ..... $ 9 $_____

17-oz. Double-Wall Acrylic Tumbler — with ASATT logo ..... $ 7 $_____

Bumper Sticker ..... $1 $_____

Cer.A.T. Embroidered Patches ..... $5 $_____

Cer.A.T. Pin ..... $8 $_____

Cer.A.T.T. Pin ..... $8 $_____

Subtotal ..... $_____

Shipping (*SUBTOTAL: up to $25:* ***$5*** *$26 to 40:* ***$8*** *$41 to 60:* ***$10*** *$61 or more:* ***$15***) ..... $_____

TOTAL AMOUNT DUE ..... $_____

REV 1-28-13

PLEASE PRINT CLEARLY

Name_____ Email _____

Address _____

City_____ State_____ ZIP Code _____

Work Phone_____ Home Phone _____

CREDIT CARD: ☐ VISA ☐ MasterCard

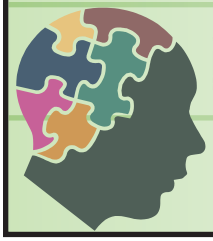
Card No._____

Exp. Date_____ CCV_____

Signature_____

Mail to: ASATT Headquarters
7044 South 13th Street
Oak Creek, WI 53154-1429

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, 2014. Achieve 80% in this quiz to earn one (1) Continuing Education credit.*

1. **The generic name for a drug is:**
   A. Non-proprietary.
   B. Not on the label.
   C. Selected by the drug company.
   D. A name given to similar drugs with similar ingredients.

2. **Through which method is cellular energy used to move the drug from an area of lower concentration to higher concentration?**
   A. Pinocytosis
   B. Passive transport
   C. Active transport
   D. A & B

3. **Controlled clinical trials were introduced:**
   A. 100 years ago.
   B. 50 years ago.
   C. 20 years ago.
   D. 60 years ago.

4. **Drug abuse occurs with the use of:**
   A. Over the counter (OTC) drugs.
   B. Prescription medications.
   C. Self-directed medicating for non-therapeutic purposes.
   D. A pharmacologic agent that interacts with living organisms.

5. **The following statement regarding "clearance" is correct:**
   A. The frequency of administration is determined by its infusion rate.
   B. A low clearance is removed rapidly.
   C. A high clearance indicates a drug which is difficult to remove from the body.
   D. Clearance refers to removal of a drug from the body.

6. **A _____-soluble drug can penetrate lipoid cells and induce anesthesia.**
   A. water
   B. lipid
   C. alcohol
   D. None of the above

7. **To predict how often a medication should be given:**
   A. You must determine how long a drug will remain in the body.
   B. You need to know the life of the medication.
   C. You need to know what most practitioners do.
   D. You need to know the manufacturers recommendation.

8. **The most important site of drug transformation is usually the:**
   A. Liver
   B. Kidney
   C. Lungs
   D. Bloodstream

9. **Passive transport of a drug occurs when:**
   A. Drug moves from a area of lower concentration to a higher concentration.
   B. Energy is required to move the drug from one concentration to another.
   C. Diffusion ceases and the drug concentration on both sides of the membrane is equal.
   D. A vesicle for transport is required to cross the cell membrane.

10. **Pharmacokinetics deals with a drug's actions as it is _____a living organism.**
    A. ...combined with
    B. ...toxic to
    C. ...metabolized within
    D. ...utilized for

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 2013 Continuing Education Quiz are:
(circle correct answers)

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

Name_____ **ASATT Number**_____

Street Address_____ **Phone** _____

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

Signature_____ **Date** _____

ASATT Calendar

Membership Events

Elections for Board of Directors begins via online voting ..... July 8

2012 membership expires ..... August 1

ASATT Annual Meeting, Las Vegas ..... August 8–10

Elections for Board of Directors ends ..... August 15

New Board orientation via conference ..... October 12

Recertification Packets for the cycle ending 12/31/2013 accepted ..... November 15

Recertification cycle ends ..... December 31

Grace period for recertification begins with late fee ..... January 1, 2014

Recertification cycle closes ..... January 31

Educational Meetings

Region 7 Meeting, Hawaii ..... October 6

Region 3 Meeting, Huntsville, Alabama ..... November 9

American Society of Anesthesia Technologists and Technicians
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