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January 1994

THE ASATT SENSOR

THE QUARTERLY NEWSLETTER OF THE
AMERICAN SOCIETY OF ANESTHESIA TECHNOLOGISTS AND TECHNICIANS

PRESIDENT'S MESSAGE ...

by Lee Amorin

The New Year brings with it resolutions and hopes for change and improvement. It also brings a new sense of energy to accomplish those goals that we set for ourselves. Like you, I have given thought to what I can channel this new energy towards. As your President, it is my responsibility to do this for the Society and for the office that I have been elected to. I'd like to take this opportunity to share with you my goals for the Society and my office for this year.

When I ran for office, I stated that there are many talented and energetic members in our Society. My goal as President is to bring out these individuals and put them to work on the various committees that are now being manned by one or two people. If you would like to become more actively involved in your Society, contact one of the officers or your Regional Director and let them know. This is your Society. At the same time, I am challenging myself to reach out and become involved with you and get to know who our members are and how I can help you. A goal that has been set by the Board of Directors is to take the Society's responsibility for training and educating its members out into the regions. This past October, the Society held its fourth annual meeting and educational seminar, which was attended by approximately 175 members. We realize that not everyone has the time and/or the money to attend this meeting. We also realize that everyone does have the need to learn more about their professions, increase their knowledge and skills, and meet fellow technicians. To satisfy this need, the ASATT will sponsor one seminar in each of the seven regions during this year. This is your opportunity to become involved by attending and, if possible, participating in the organization of the event.

To further meet the need for training, we have completed the 'Self-Evaluation Test' which will help you assess your individual level of skill and indicate areas which need further education. This test will be distributed to all active members in the next few weeks. In addition, we will be conducting a 'Job Description Survey' during the next few months.

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Inside your Sensor:

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The opinions expressed herein are those of individual authors, and do not necessarily reflect the views or opinions of the ASATT.

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All submissions pertinent to the objectives of the ASATT will be considered for publication. Photographs, preferably black-&-white, are also welcome and will be returned.

Deadline for the next issue is March 1, 1994.

Printed on recycled paper.

THE VIEW FROM...

SOUTH CENTRAL REGIONAL MEDICAL CENTER
LAUREL, MISSISSIPPI

by Lelia Graham and Julia Johnson

The South Central Regional Medical Center is in Laurel, Mississippi, (near the Gulf Coast, between Jackson and Hattysburg). Our 280 bed hospital serves a wide variety of medical needs for the people in this area. Our Surgery Department supports seven OR's with services including orthopedics, pediatrics, ophthalmology, gynecology, cystoscopy, ENT, and general surgery. We also handle trauma cases. We are very busy this time of year with school children having tonsils removed and M.E. tubes inserted during the holiday vacation. In addition to the OR's, we have three labor and delivery rooms, with about 100 deliveries per month.

At our hospital a major emphasis is placed on cross-training among the OR staff and anesthesia support personnel. Lelia is a certified nurse's aide who was trained on the job as an anesthesia technician. Julia is a CNOR in the ophthalmology service who also assists anesthesia providers in several areas. The two of us provide support for eight CRNA's and one MD anesthesiologist.

Lelia's many duties include ordering drugs, meeting with sales representatives, stocking anesthesia supplies in the OR's and L & D's, maintaining equipment, helping with case turnover's, assisting with central and arterial line preparation and placement, and anesthesia billing. She also has been cross-trained to act as a relief circulator in the OR's.

In addition to her duties as a CNOR in the ophthalmology service, Julie has several anesthesia related duties. She runs the cell-saver, starts IV's, and assists anesthesia providers in the OR's.

We have been trying to organize a local anesthesia tech society with anesthesia techs from Jackson and Hattysburg. We also have been fortunate to be able to attend the ASATT Annual Meetings.

...at the ASATT Annual Meeting in October -

Sage Advice. *Linda Nester looks on as outgoing President George Mann (right) offers some thoughts to incoming President Lee Amorin.*

Hot Topic. *Michelle Raney, M.D. wraps-up her presentation on anesthesia for burn surgery.*

TECHNICALLY SPEAKING

by Wes Simpson II
San Diego, CA

The technology that we work with continues to grow both in variety and complexity. Ideally, the newest is also the safest and the most effective. With each change, however, comes the potential for new complications. The first citation below provides an overview of these changes.
New solutions to old problems can make our lives easier, increase patient safety, and sometimes prove that simpler is better. The balance of the citations below reinforce this idea. In addition, there are a few recommendations for your personal library, and the final citation is offered as food for thought.

Smith TC: **The Anesthesiologist's Hardware: Continued creation and continued complication.** Current Opinion in Anesthesiology, 1993; 6:930-937.
This excellent review article focuses on changes in gas and vapor supply, the anesthesia machine, breathing circuits, ventilators, and laryngeal masks. Eighty-five references are listed, some highlighted as having special or outstanding interest. The author concludes that new ideas produce novel equipment that can produce different or unexpected problems.

Eagle CCP and Capes DF: **Use of a new syringe pump for muscle relaxant infusion.** Anaes Intens Care, 1993; 21:444-476.
Describes a new spring-loaded syringe pump which was introduced to the U.S. market at the 1993 ASA Meeting. Accuracy and limitations of the device are discussed. The system was found to be rugged, inexpensive, and easy to use.

Taber KH, Thompson J, Coveler LA, and Hayman LA: **Invasive pressure monitoring of patients during magnetic resonance imaging.** Can J Anaesth, 1993; 40,11:1092-1095.
Describes the development of a system for monitoring patients who require general anesthesia, profound sedation, or intensive care while undergoing high field MRI procedures. The system allows for continuous evaluation of invasive and noninvasive pressures, inspired and end-tidal respiratory gas concentrations, body temperature, ECG, heart rate, and SpO2.

Zuckerberg AL: **A hot mnemonic for the treatment of malignant hyperthermia**. Anesth Analg, 1993; 77:1077 (letter).
A simple mnemonic (memory device) is offered, modified from protocols suggested by the Malignant Hyperthermia Association of the United States (MHAUS), that covers all of the initial therapy steps for an MH crisis.

Deltell A, Bardoczky G, and d'Hollander A: **An intraoperative use of a laser pointer.** Anesth Analg, 1993: 77:1078-1079 (letter).
Describes the use of a simple laser pointer to aid in establishing the zero reference line for invasive monitoring transducers. The use of a pointer eliminates some of the problems inherent in zeroing, compared to using levels or rulers.

Biro P: **Damage to laryngeal masks during sterilization.** Anesth Analg, 1993: 77:1079 (letter).
Offers a simple suggestion to eliminate the possibility of damage to laryngeal mask airways during sterilization.

Sosis MB, and Braverman B: **Prevention of cautery-induced airway fires with special endotracheal tubes.** Anesth Analg, 1993: 77:846-847.
This study compares six different endotracheal tubes which had previously been evaluated for use during laser surgery. The authors recommend that special precautions, similar to laser protocols, be used to prevent airway fires from electrocautery used during airway and oral surgery.

Hannallah MS, Benumof JL, McCarthy PO, and Liang M: **Comparison of three techniques to inflate the bronchial cuff of left polyvinylchloride double-lumen tubes.** Anesth Analg, 1993: 77:990-994.
Three different methods for determining proper bronchial cuff inflation are discussed. Positive pressure technique, negative pressure technique, and CO2 analysis technique are compared and contrasted. Problems with over- and under-inflation of the bronchial cuff of a double-lumen tube are cited.

Spencer LW: **Integrity vs hypocrisy - that delicate balance; a commentary on humanity.** West J Med, 1993: 159:614-619.
This commentary is food for thought, and particularly appropriate at the new year.

FOR YOUR PERSONAL LIBRARY:

The following are available from the American Society of Anesthesiologists at 520 N. Northwest Highway, Park Ridge, IL 60068-2573:

continued on page 5

continued from page 4

1993 Refresher Course Lectures ($10.00):
Ninety-nine lectures are presented in a single bound volume, indexed for easy reference.

1993 Problem-based Luncheon Discussions ($15.00):
Outlines of 49 cases, with seed questions, are presented for in-depth discussion. The concepts behind this particular learning model are also explained.

Anesthesiology, The Journal of the ASA, September 1993Supplement ($20.00):
Contains abstracts of all 1252 scientific papers presented at the 1993 ASA meeting in Washington, D.C. The abstracts are thematically grouped.

CURRENT TECHNOLOGY...

PULMONARY ARTERY CATHETERIZATION

by Dianne Holley
Seton Medical Center, Austin, TX

Pulmonary artery (PA) catheterization is an invasive procedure most commonly performed on critically ill patients. The procedure usually involves introducing a multi-lumen catheter through a special internal jugular or subclavian catheter called an introducer. The PA catheter passes through the superior vena cava into the right atrium (RA) of the heart, then through the right ventricle (RV), and into the pulmonary artery (PA) where the narrowing of the vessel allows a balloon at the tip of the catheter to wedge the catheter in the vessel until the balloon is deflated. Depending upon the specific components included in a PA catheter, several diagnostic measurements can be obtained. These include PA, CVP, and pulmonary artery wedge (PAW) pressures, measurement of cardiac output (CO) using thermodilution, and measurement of oxygen saturation in the mixed venous blood present in the pulmonary artery (SvO_2). Some PA catheters even include electrodes for internal cardiac pacing.

Two of the most common brands of PA catheter are the Opticath by Abbott Critical Care, and the Swan-Ganz by Baxter Edwards. Since Drs. HJ Swan and W Ganz were pioneers in this type of catheterization, the term Swan-Ganz is frequently used to refer to any PA catheter regardless of manufacturer. Also, numerous configurations of the PA catheter are available that can perform from few to all of the possible measurements and functions. The catheter that will be examined here will be the Opticath Extra Port Fiberoptic Pulmonary Catheter with Flow-Directed Thermodilution, Model Number P7110-EP8-H, by Abbott Critical Care Systems.

The Opticath Extra Port Fiberoptic PA Catheter contains three fluid lumens and one air lumen, two fiberoptic bundles, and a thermistor. The four lumens are accessed via luer-lock connectors on the proximal end of the catheter. The three fluid lumens end at different points along the catheter inside the patient. *See Figure 1.* One lumen (PA-distal) opens at the distal end of the catheter in the pulmonary artery, a second lumen (RV extra-port) opens in the right ventricle, and the third lumen (CVP-proximal) opens in the right atrium. The air lumen terminates at a balloon at the distal portion of the catheter and has a stopcock at the proximal end to allow the balloon to be left inflated. A special 3cc syringe with a maximum capacity of 1.5cc is included with the catheter to inflate the balloon with the necessary 1.5cc of air. The two fiberoptic bundles have a proximal optical connection and end distally at the tip of the catheter. The thermistor has a proximal connector and distally, the thermistor probe ends about 1" from the tip of the catheter.

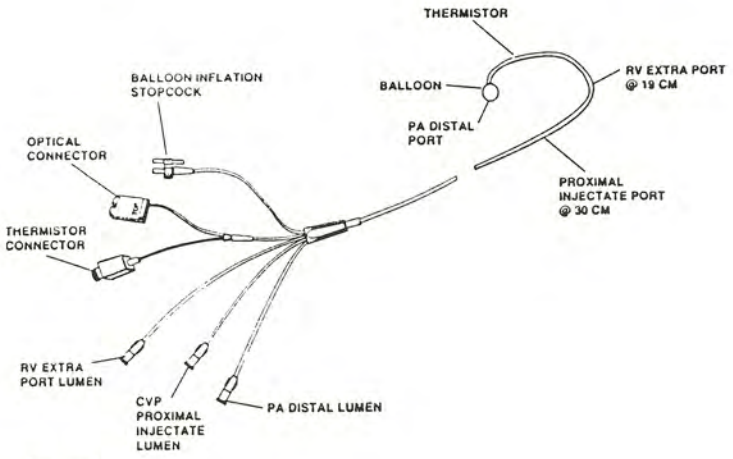


Figure 1

Several items are necessary to set up the Opticath PA catheter prior to insertion and use:

1. Pressure monitoring line (transducer).
2. ECG/Pressure monitor.
3. Syringes and/or stopcocks to flush fluid lumens with heparinized saline.
4. Syringe for inflating balloon (usually supplied sterile with the catheter).

In addition, if cardiac output (CO) computations are

to be performed, a CO monitor, cable, and injectate system will be necessary. If SvO_2 determination is desired, an SvO_2 monitor and cable will be needed. These monitors can be a combination SvO_2/CO computer like the Abbott Oximetrix 3, or they can be incorporated into a modular type of multi-parameter monitor like Marquette and Space Labs have available.

Specific instructions for the setup of a PA catheter are provided inside the outer package of each PA catheter. These should be referred to as there can be differences among the different manufacturers' guidelines. Generally, however, the outer wrapper of the PA catheter is removed, leaving the inner package intact to preserve sterility. This should expose the proximal portions of the catheter which can be handled during setup provided the fluid paths are not contaminated. The optical module at the end of the SvO_2 cable should be connected to the optical connector and placed in the tray section provided. The pressure monitoring line and other fluid path flushing devices, and the cardiac output cable can also be attached at this time. The tray should be set in a spot where it will not be disturbed and the optical module should be given time to warm up (15 min). After this time the pre-insertion calibration can performed. (Refer to specific manufacturers' instructions).
After the patient has been prepared for catheter insertion, pull off the remaining inner catheter cover, taking care not to contaminate the sterile areas of the tray. The person who will insert the catheter should gently and aseptically remove the distal catheter tip from its housing, followed by the rest of the catheter from the tray. The assistant holds the proximal portion of the catheter in preparation for testing and flushing. The balloon should be lubricated and tested prior to insertion into a contamination shield and then tested again after insertion into the contamination shield. The fluid paths should be flushed with heparinized saline. The catheter is now ready for insertion into the patient. (Refer to specific manufacturers' instructions.)

As the catheter is advanced into the patient, changes in the pressure tracings on the monitor can help the clinician determine the position of the catheter tip. The assistant should take care to hold the proximal portion of the catheter as steady as possible since movement can cause substantial artifact. When the catheter reaches the RA, the pressure trace shows some rhythm, but is still relatively flat—at this point, the balloon should be inflated. *See Figure 2.* The catheter is then advanced into the RV—the pressure trace becomes a pronounced up and down wave pattern reflecting the contracting of the ventricle and the pressures it produces as it pumps blood in and out of the chamber. Once the catheter passes through the pulmonic valve and into the PA, the waveform tends to peak at the same level as the RV waveform, but not fall as low—this is due to the pulmonic valve shutting during diastole to prevent the blood from being sucked back into the RV by the lower pressures it produces to pull blood in from the RA. When the catheter has been advanced far enough into the pulmonary artery that the balloon wedges it in the narrowing vessel, the waveform flattens out since the pressures produced by the RV cannot push past the wedged balloon. After the

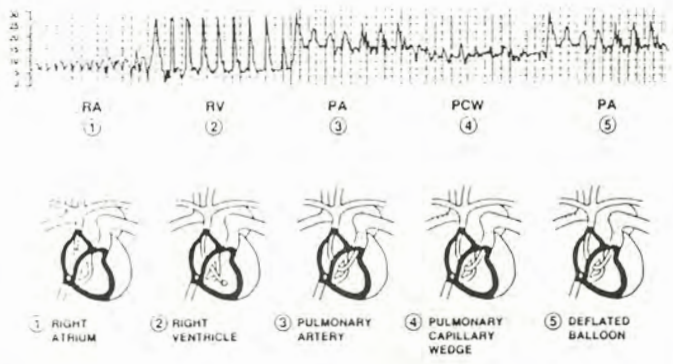


Figure 2

balloon is deflated, the PA waveform can once again be observed. Both the PA and PAW (pulmonary artery wedge) pressures provide important diagnostic information to the clinician.
Properly inflating and deflating the balloon plays a very crucial role in inserting the PA catheter. The balloon performs several functions. In addition to wedging the catheter in the PA, it acts as a cushion, protecting the heart and vessel walls from the somewhat pointed tip of the uninflated catheter. Also, since when a patient is lying face up, the RV and PA are anatomically higher than the RA, thus the balloon can "float" into position as it is advanced. This helps prevent the catheter from curling up in the RA or RV. To properly inflate the balloon:
1. Make certain that the syringe contains its full 1.5cc of air (no more or less) before attaching it to the balloon port.
2. Attach the syringe securely to the port to insure that no air escapes around the connection.
3. Inflate the balloon slowly, feeling for any unusual pressure, and watching the monitor for an abrupt and somewhat smooth rise in the pressure tracing. Should either of these events occur, immediately release pressure on the syringe barrel - they could signal that the catheter tip is in a vessel too narrow for full inflation of the balloon, in which case, continued inflation could rupture the vessel possibly

causing death to the patient. Even after the catheter has successfully been wedged, it can migrate further into the PA and into a narrower portion of the vessel.

4. Deflate the balloon by removing the syringe from the connection. Never draw back on the syringe barrel. Passively allowing the syringe to refill itself as the balloon deflates by releasing the barrel of the syringe is generally acceptable, but it takes longer for the balloon to deflate.

Once the catheter is in place in the patient, a light intensity calibration should be performed, (provided that a pre-insertion calibration was successfully performed prior to insertion). This procedure calibrates the monitor to the light reflectance properties present at the tip of the catheter. A light intensity display can inform the clinician whether the catheter is in the proper position and can even give information as to what the clinician can do to improve the position of the catheter (i.e. the catheter tip might be pushed up against the vessel wall instead of pointing along the blood flow, manipulating the catheter can correct the problem). Once proper positioning is shown by the light intensity display,the light intensity calibration can be performed. Some monitors require a light intensity calibration after an *in vivo* calibration.

If for any reason: a pre-insertion calibration was not performed or calibration information was lost due to disconnection of the optical module from the catheter connection, an *in vivo* calibration can be performed while the catheter is in place in the patient. *In vivo* calibration involves drawing a blood sample from the distal port of the catheter at a time marked by the computer. While a blood gas analysis is being run on the sample, any changes in the patient's SvO_2 will be "remembered" by the computer and compensated for when the O_2 saturation of the sample is programmed into the computer.

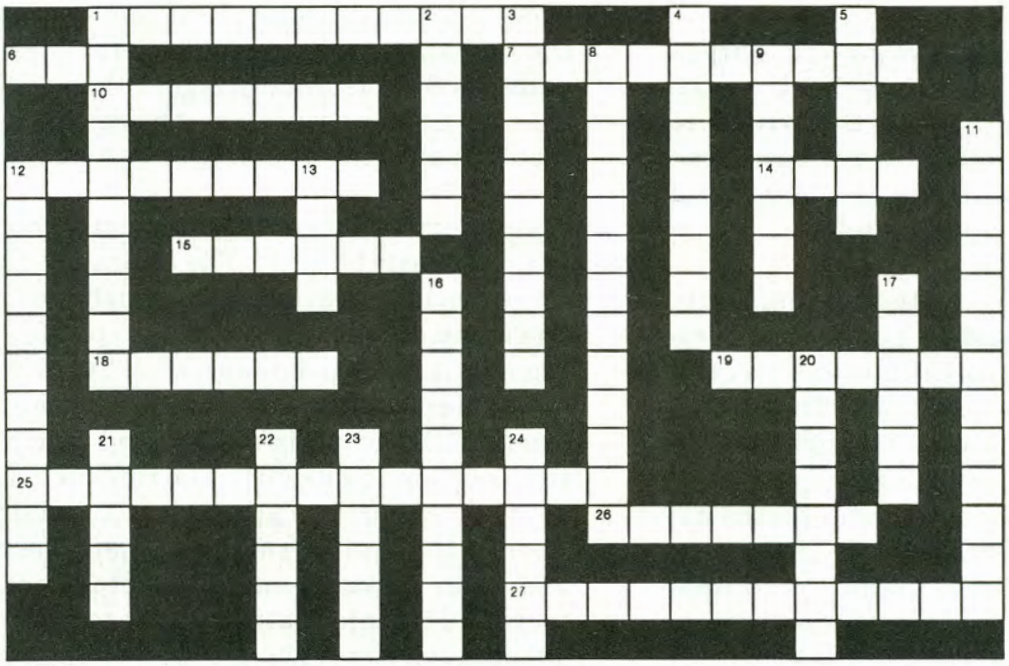
SvO_2 monitoring gives important information concerning the patient's oxygen consumption. It is closely related to SpO_2 (SaO_2) or pulse oximetry both diagnostically and technically. Both SvO_2 and SpO_2 measure oxygen saturation in the blood using fiberoptics carrying visible and infrared light. SpO_2 or pulse oximetry measures oxygen saturation of arterial blood (after oxygenation in the lungs, but before the blood reaches the capillaries and tissues where the oxygen is consumed). SvO_2 measures the oxygen saturation of venous blood returning to the heart from the tissues, before it reaches the lungs via the pulmonary artery. If the two are compared (SpO_2 minus SvO_2 equals oxygen consumed by the body) knowledge about a patient's metabolism can be inferred. In the operating room, under general anesthesia, a patient's SvO_2 is usually higher than in the critical care units because anesthesia slows the metabolism and thus the oxygen consumption.

SvO_2 operates by reflection spectrophotometry, again similarly to SpO_2. The optical module emits three separate wavelengths of light which travel down one optical fiber to the tip of the catheter. There it is reflected or absorbed by the red blood cells, depending upon the wavelength and whether the blood is oxygenated or not (bright red *vs* bluish red blood). The reflected light travels back up the PA catheter via a second optical fiber to the optical module. There the amounts and types of wavelengths reflected back are detected. This information is sent to the computer which determines the amount of oxygenated *vs* unoxygenated blood. The light source and receptor similar to that of a pulse oximeter probe, can be observed when the door of the optical module is opened.

Cardiac output (CO) determination by thermodilution was the topic of a lecture given earlier in this seminar, therefore it will not be discussed at length here. The cardiac output cable splits into two portions, one connecting to the PA catheter and the other connecting to a thermistor probe measuring the temperature of the injectate. The PA catheter connection runs distally to a thermistor near the tip of the catheter. The injectate system is connected to the CVP/ proximal port of the catheter (where central venous pressure or CVP can also be measured by connecting to a pressure monitoring line). Briefly, a colder-than-body-temperature fluid is quickly injected via the CVP port into the right atrium. As it moves through the heart and the pulmonary artery the thermistor at the end of the catheter records the changes in the blood temperature as it cools and rewarms. The CO computer uses these changes and how quickly they occur to calculate the cardiac output (amount of blood being pumped by the heart during a given amount of time).

PA catheters need only include a balloon and a distal port to allow simple measurement of pulmonary artery and pulmonary artery wedge pressures. However, because of their location they can provide easy accessibility to a great wealth of diagnostic information.

TECHNICIAN CROSSWORD



ANSWERS TO PREVIOUS PUZZLE:

```
LIVER     FEMUR
 L   O    E
 I   L    M
PANCREAS O    V
 C   C  BRACHIAL P K
   G R  A  U G  A I
METACARPALS M U  T D
   L N      E SPLEEN
   L O      R  H L E
 M B N  RADIUS A L Y
 E L      S  L A S
 TRANSVERSE    A
 A D           N
 T DURAMATER   G
 A E      I    E
 R R      G    S
 S  U     H
 AXILLA   TIBIA
 L  N
 S  A
```

Chest Excursions... *by Abel Borromeo, Seattle*

ACROSS:

1 Ventilation that is maintained without external assistance.
6 Abbreviation for the material widely used in disposable E/T tubes.
7 Term used for the removal of an endotracheal tube.
10 Point of gas exchange in the lungs.
12 Room air is _____% oxygen.
14 Balloon-like feature that secures an E/T tube in the airway.
15 Low-flow breathing system that does not use the expiratory valve.
18 Type of oral airway that has a single channel.
19 E/T tube embedded with a spiral wire.
25 Type of valve used in inspiratory and expiratory limbs.
26 Endotracheal tube connectors are _____mm in diameter.
27 Gas that is known to cross into the cuff of an E/T tube, causing overpressure and possibly occlusion.

References:

Anesthesia Equipment: Principles & Applications
J Ehrenwerth & JB Eisenkraft
1993. Mosby Publishers, St Louis.

Anesthesia. Second Edition (Vol 1, Ch 5)
R Miller (ed)
1986. Churchill Livingstone, New York.

DOWN:

1 Removal of excess respiratory gas from the O.R.
2 Always less of this in the expiratory limb than in the inspiratory limb.
3 Breathing system that uses a CO2 absorber and circle breathing circuit.
4 Both Baralyme and Sodasorb are types of _____.
5 Alternative term for the adjustable pressure relief valve.
8 Patient circuit connectors are _____mm in diameter.
9 Cartilaginous tube that conducts air down to the bronchi and lungs.
11 Component of respiratory gas that confirms correct E/T tube placement.
12 Minute ventilation divided by respiratory rate.
13 Functions as a warmer, humidifier, and air filter.
16 Soft flap of tissue that prevents food or fluid from entering the lungs.
17 Type of E/T tube that has a lateral hole at its end.
20 System that uses high fresh gas flows to prevent rebreathing.
21 Pressure in the E/T tube cuff is confirmed by the _____ balloon.
22 Type of oral airway that has three distinct channels.
23 Device used to stiffen an E/T tube and hold it in a specific shape.
24 Also known as the voice box.

REGIONAL SOCIETY ACTIVITIES...

Let us announce what's happening in your area. Send a brief report of recent or future activities for the next issue by February 28 to Dianne Holley. Send newsletters, if available, or give your info on my answering machine if I'm not home. Photos (captioned) are also welcome.

ASATT Region 2
A regional meeting is being planned for members of **ASATT Region 2** (consisting of PA, MD, OH, IN, MI, VA, WV, and DE) on May 14 at the University of Pittsburgh.
For further information:
Wilma Frisco at (216) 541-5710.

ASATT Region 7
A regional meeting is in the works for Saturday, April 16, at the Red Lion in Bellevue, Washington. Details will be mailed soon.
For further information:
Ruth Ochoa at (503) 370-5200 x225.

California
The **California Association of Anesthesia Technologists and Technicians** will host their *10th Annual Meeting and Seminar* next May, where else, but in sunny Monterey.
For further information:
Ron Turner at (510) 674-2241.

Colorado
It's almost time for the annual *Crash 94* meeting in Vail, featuring a separate 4-day schedule especially for anesthesia techs. The University of Colorado, Department of Anesthesiology and the **Colorado Society of Anesthesia Technicians and Technologists** coordinate this educational event.
For further information:
Judy Drakiotes at (303) 270-8399.

Florida
For information on future events:
Jerry Guttery at (904) 374-6051 [work] or (905) 472-3925 [home].

Illinois
The *1994 Midwest Anesthesia Conference* sponsored by the Illinois Society of Anesthesiologists, will be held next May 13-15 at the Fairmont Hotel in Chicago. Watch your mail for program and registration materials. For general information, contact the meeting planner, Leslie Davis at (708) 520-2559.
For further information:
Jim Underwood at (309) 968-6998.

Maryland/DC
For information on future events:
Richard Harrison at (410) 225-8176.

Michigan
Elections will be held in January for officers for the **Michigan Society of Anesthesia Technologists and Technicians.**
For further information:
Louise Martin at (313) 593-7696 or Jim McEvoy at (313) 343-4766.

New York
For information on future events:
John Armstrong at (716) 336-3377.

Ohio
January is election month for officers for the **Ohio Society of Anesthesia Technologists and Technicians.**
Monthly educational meetings for **OSATT** will also resume in January with a pharmacology review in January and a lecture on epidural anesthesia and epidural morphine in February. The monthly meetings are held on the 4th Saturday of each month.
For further information:
Wilma Frisco at (216) 541-5710.

Oregon
The organizational meeting of the **Oregon Association of Anesthesia Technologists and Technicians** was held in early October at the VA Medical Center in Portland. We adopted bylaws, appointed committees, and elected the following officers: Dave Mastalski, president; Susan Esther, vice-president; Shannon Krecek, secretary; and Dorthea Pual, treasurer. An educational seminar is scheduled for early February '94.
For further information:
Dave Mastalski at (503) 644-6646, or
Guy Buckman at (503) 370-5200 pgr 227.

Pennsylvania
For information on future events:
Norman Holst at (215) 590-2798 [work] or (215) 927-4958 [home].

Tennessee
The **Association of Tennessee Anesthesia Technicians and Technologists** is planning an educational meeting in April in Nashville. The timing should coincide with the opening of Opryland, USA, so pack your families and "Y'all come".
For further information:
Sharon Baskette at (615) 322-4000 [work] or (615) 646-1599 [home].

Texas
An educational and business meeting is being planned by the **Texas Society of Anesthesia Technology** in late March. Educational meetings are regularly held in San Antonio [Raul Sanchez at (210) 675-1564], Dallas [Kyle Logsdon at (214) 820-2165], Austin [Dianne Holley at (512) 451-7457], Houston [Drucilla Overton at (713) 729-5606], and El Paso [Estella Ramirez at (915) 544-0606].
For further information:
Dianne Holley at (512) 451-7457.

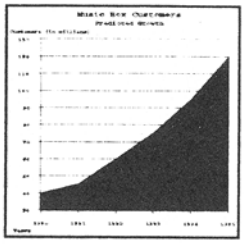
Virginia
For information on future events:
Linda Ferris at (703) 985-8351.

Washington
An informal meeting of the **Northwest Society of Anesthesia Technology** is scheduled for Saturday, 22 January, at Shakey's Pizza in north Seattle. Future meetings and speaker topics will be discussed.
For further information:
Dennis McMahon at (206) 223-6980.

Wisconsin
For information on future events:
Noreen Soeller at (715) 387-7179 [work] or (715) 387-4792 [home].

"GROW SOME MORE IN '94!"

The ASATT Membership Drive



During 1994 all active members who recruit two new members will receive their membership ***free*** *for one year. The new members may belong to any category: Active, Individual, Associate, Institutional, or Corporate.*

To participate, send in the completed membership forms along with payment when you return your membership renewal form. To be valid all forms must be sent in together and accompanied by payment. Renewal notices are sent out to members quarterly. Watch for yours.

HELP US GROW!

The President's Message *Continued From Page 1*

The test and survey benefit not only you as individual members, but help the Board tailor future educational seminars to meet your needs.

Another goal of the Society is to bring more of the anesthesia technical community into its membership. During these times of turbulence and change within the healthcare industry, it is mandatory that we, as a profession, stand united. Many institutions throughout the country are finding it necessary to cut costs. Staff reductions, delay of both equipment purchases and introduction of new technologies are being used by hospital administrators to achieve these cuts. This is a direct threat to our existence, who some see as dispensable. We must stand together and show them that we are indispensable. To help increase our ranks, I am announcing a membership drive, "Grow Some More in '94!" The details of the drive can be found elsewhere in this issue of the Sensor.

The goals that I have mentioned are certainly not the only ones that must be worked on during this year. The long-term goals of establishing training programs, certification of members and improving recognition of our profession, also need our attention and energy. In closing, I would like to assure you that I will do my best to help the Society accomplish these goals, and also to ask your assistance. The Society belongs to you and needs your participation.

Advertising Rates for The Sensor

Effective 1 August 1993

Display Ads: Announcements of products, services, or educational programs relevant to the theory, maintenance, or application of anesthesia technology.

Rates: Display Advertising (camera-ready mechanicals, one-color process):

Half-Page Horizontal	7 1/2" wide x 4 3/4" deep:	$200 per insertion.
Half-Page Vertical	3 1/2" wide x 9 1/2" deep:	$200
Quarter Page	3 1/2" wide x 4 3/4" deep:	$100

Corporate Member Discount: 25%

Classified Ads: Individuals seeking employment, or employers seeking candidates, in
anesthesia technical support.

Width: 3 1/2", CG Times type, 12-point. Typeset by editors.

Rate: $8/line, 5-line minimum

Active Member Discount: 25%

ASATT reserves the right to refuse advertising copy for any reason at any time.

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