Notes from the Editor
by Steven E. Sittig, RRT

As I write this column, it is nearly the middle of August. I cannot believe the summer of 2001 is almost gone. I hope all of you had a good summer and were able to take some much needed time away from work. I, myself, have just returned from a class reunion, where I had the chance to meet with fellow high school classmates, some I had not seen since graduation. It is sort of scary to realize how quickly time passes. But it is also amazing to see how friendship and the classmate bond seem to have no boundaries.

One of the subjects I would like to address in this issue is a situation that was brought to my attention by Barry Stahlman, who is a PACT representative for the Minnesota Society for Respiratory Care. It seems that a certain hospital director has used a limited survey of five “top” pediatric hospitals that do not use RTs on pediatric transport (instead they used two RNs) to show there is no need for respiratory therapists to be on the peds transport team. As of this writing in mid-August, both Jerry Focht, our section chair, and I have emailed the person submitting the request for help, but have yet to hear anything back. We will keep you posted in future Bulletins.

In the meantime, this situation illustrates how important it is, during this time of restructuring due to new reimbursement guidelines set forth by the Centers for Medicare and Medicaid Services (formerly HCFA), for us to be aware of such situations and capable of contradicting such “data” by showing our important contribution to the transport of patients. How can we accomplish this goal?

Protecting our presence on transport has to begin, of course, with the individual respiratory department and its medical director. Support must be given to transport personnel to acquire new skills and maintain them. While other department members may not always understand the added dedication and skills needed to do flights, etc., management must be willing to allow flexibility in staffing so that RTs can increase their role in patient transport.

Equally important, however, are our collective efforts on behalf of our specialty. The best way for us to ensure our voice is heard is for us all to belong to both the AARC and this section. The field of respiratory therapy has grown over the years through the presentation of scientific data by the AARC showing how much we can benefit a patient’s care. The model of therapist driven protocols is an excellent example of such data.

By belonging to the AARC and to this section, transport RTs gain added clout on a national level to fight efforts to replace RTs with other paramedical or nursing personnel. A few Bulletins ago, Jerry made a good point that due to the nursing shortage, we are in an excellent position to move into new areas. The AARC can help us promote this point to key decision-makers. I highly encourage all of you to discuss these issues with your coworkers and encourage them to join the AARC and this section to help protect their presence in the air medical field.

A good example of how the AARC and the section work to encourage the use of transport RTs is coming up soon. Both Jerry and I are planning to attend the American Medical Transport Conference in Orlando, FL, September 24-26, where we will have a booth to promote RTs in the air medical field. Be sure to look for our report on how the conference went in the next Bulletin. We are also looking forward to the AARC International Congress in San Antonio, TX, this December. If you haven’t already made your plans to attend, do so today! The program will feature an array of excellent topics and speakers designed especially for transport RTs. It will also provide an opportunity for us all to gather together during the section business meeting to discuss important areas of common concern.

One final note: I am still looking for budding writers to submit articles or suggestions for this Bulletin. If you have a topic you’d like to address, please contact me at the addresses/numbers listed on page two. I am always available to help you get started on an article.

Until next time, may all of your transports end safely for both you and your patient.
A Practical Problem

by Steven E. Sittig, RRT

You are asked to transport a young child with a suspected bowel obstruction, and the referring facility has a 12 French Salem NG with anti-reflux valve in place. You are asked to keep it to low intermittent suction during your 40-minute flight on the helicopter. The weather is closing in, and you are pushed to depart quickly.

Once airborne you realize you have no Sims adaptor to connect to the standard suction tubing. What could you use to solve this problem? I know Kathleen Adams says not having duct tape on board is against the rules, but surely there is something else in your transport bags that you could use to quickly and easily fix the problem!

I recently posted this problem on the section listserv, and right off the bat Aaron Lund, from StarCare V, hit on my solution. Aaron suggested taking an IV catheter, throwing away the catheter, and cutting off a small portion of the tip of the protector and then clipping off the larger end that covers the sharp. I tried it, and it worked great. The flight nurse suggested taking an IV catheter, throwing off the larger end that covers the sharp. I tried it, and it worked great. The flight nurse and the peds transport nurse were impressed by my quick thinking. (I just hope I don’t have to build a ventilator in flight someday!)

Do you have a practical problem you’d like help solving? If so, post it on the section listserv! Not a member of the listserv? That’s easy to solve. Just visit the AARC web site, click on “Community,” then “Specialty Sections,” then “Transport,” and follow the directions to sign up.

Global Positioning Systems: Modern Navigational Aid

by Steven E. Sittig, RRT

As you lift off for another flight, you overhear the pilot giving a report on the number of souls on board and the amount of fuel and estimated time of arrival to the referral facility. But he never even mentions how he’s going to get you there. We in the transport field take navigation for granted. How he’s going to get you there. We in the transport field take navigation for granted. How he’s going to get you there. We in the transport field take navigation for granted. How he’s going to get you there. We in the transport field take navigation for granted. How he’s going to get you there. We in the transport field take navigation for granted. How he’s going to get you there.

But ever since prehistoric times, people have been trying to figure out a reliable way to get from point A to point B and back. The earliest mariners always followed the coastline to keep from getting lost. As maritime travel advanced, they realized they could chart their course by following the stars — a fairly good way to track position, but not one that was of much help during the daylight. And even at night, it had to be clear or the system was totally useless.

The next advance in navigation came with the development of the magnetic compass and the sextant. Since the needle of the compass always points north, you could determine your direction. The sextant is an instrument that uses a series of mirrors to determine the exact angles of the stars, moon, and the sun above the horizon. Of course, this only allowed the early mariners to determine their latitude (position on earth north or south of the equator). Determination of the longitude, or east-west position, was not solved until 1761. In that year, a cabinetmaker named John Harrison developed a shipboard timepiece called a chronometer. This timepiece was incredibly accurate even by today’s standards, losing or gaining only a second a day. For the next 200 years the use of the shipboard chronometer, sextant, and magnetic compass helped mariners obtain latitude and longitude information.

This system worked fine for ship traffic, but with the advent of air travel, a new system involving radio-based navigation was developed. The system was used extensively during World War II, but it had two serious problems. First, you had to choose between an accurate system that didn’t have a long range or a long range system that wasn’t very accurate. Ultra high frequency, or UHF, radio waves are extremely accurate, but the signals don’t travel very far. Therefore, the signal can only be picked up in a small area. Lower frequency signals like AM radio waves have a longer distance of coverage but are not as accurate in determining position. A better solution was to place satellites high above the earth, transmitting a specially-coded high frequency radio signal. Thus the Global Positioning System (GPS) was born.

GPS was originally developed to meet the needs of the military, but civilian uses continue to be found. Many transport aircraft and more ground vehicles are being outfitted with GPS systems. During flights you may hear the pilot give position reports in numerical coordinates. Ever wonder how this is accomplished?

GPS has three parts: the space system, the control system, and the user system. The space segment consists of 24 satellites, each in its own orbit 11,000 nautical miles above the earth. The control segment consists of unmanned monitor stations located around the world (Hawaii, Kwajalein in the Pacific Ocean, Diego Garcia in the Indian Ocean, Ascension Island in the Atlantic Ocean, and at Falcon Air Force Base in Colorado Springs, CO, which is a master ground station along with four large ground antenna stations that broadcast signals to the satellites). The stations also track and monitor the GPS satellites. The user segment can be installed in aircraft, ships, cars, or handheld units. Typically, handheld units are about the size of a cellular phone.

A GPS satellite takes 12 hours to complete one orbit of the earth. Each satellite is equipped with an accurate clock to let it broadcast signals coupled with a precise time message. The user segment receives this satellite signal, which travels at the speed of light. Even traveling at this speed, the signal takes a measurable amount of time to reach the receiver in the user unit. The difference between the time the signal is sent and the time it is received is multi-
“Global Positioning” continued from page 2

plied by the speed of light. This allows the receiver to calculate the distance to the satellite.

The principle behind GPS is the measurement of distance between the receiver and the satellites. The satellites also tell us their exact position in orbit above the earth. If we know our distance from one satellite, we know we are somewhere on the surface of any imaginary sphere with a radius equal to the distance to the satellite radius. If we know the exact distances we are between two satellites, we know we are somewhere on a line where the two spheres intersect. Utilizing the measurements from a third satellite, there are only two possible points where we could be, and one would be in orbit above the satellites! That’s not a logical position, so the receiver units delete this position. In order to measure your precise latitude, longitude, and altitude, the receiver measures the time it takes to receive the signals from four different satellites. These time measurement differences are plugged into the formula mentioned above. Initially, the reported position had a built-in margin of error (a Defense Department requirement); this has since been removed, and reported positions are now very accurate.

The future of GPS is unlimited, and the technology may soon be a common option in automobiles. So, for all you guys out there who hate asking for directions while driving cross country — technology will soon save you from having to admit you might be lost, and thus from a dispute with your wife or significant other. You will be able to say with confidence that you know exactly where you are. Isn’t technology wonderful?

Families in Indiana now have access to state-of-the-art neonatal transport services staffed by qualified respiratory therapists and nurses. According to a recent article in the Air-Med Journal, Riley Hospital for Children in Indianapolis was slated to initiate its new LifeLine helicopter transport service last June. The goal of the service is to allow the hospital to reach all corners of the state quickly and efficiently, ensuring that critically ill newborns get the special care they need as fast as possible. The flight program is also the only one in the state to provide nitric oxide on transport. Says Michael Trautman, MD, medical director of the program, “This will allow us to stabilize infants who are experiencing severe lung disorders, including persistent fetal syndrome, a life-threatening pulmonary disorder.” (Source: Air-Med Journal, July-August 2001)

Northwest MedStar to Test PDAs

Northwest MedStar in Spokane, WA, is pilot-testing the use of handheld personal data assistants (PDAs). The program ordered 15 Handspring Visor Deluxes in mid-summer for distribution to its flight nurses. The devices, which will be used to provide flight crews with medical and drug references, including a custom version of their own medical treatment protocols, are expected to be in the hands of respiratory therapists sometime next year as well. For more information, contact Jerry Focht, section chair and MedStar RT, at the addresses/numbers listed on page two.

Get it on the Web

Want the latest news from the section in the quickest manner possible? Then access the Bulletin on the Internet! If you are a section member and an Internet user, you can get your section newsletter a week and a half to two weeks earlier than you would get it in the mail by going to your section homepage at: http://www.aarc.org/sections/section_index.htm. You can either read the Bulletin online or print out a copy for later.

The AARC is encouraging all section members who use the Internet to opt for the electronic version of the Bulletin over the mailed version. Not only will you get the newsletter faster, you will be helping to save the AARC money through reduced printing and mailing costs. These funds can then be applied to other important programs and projects, such as ensuring effective representation for RTs on Capitol Hill.

To change your option to the electronic section Bulletin, send an email to: mendoza@aarc.org.

Experience the Best of the Science, Tradition, and Future of Respiratory Care

28th Annual Donald F. Egan Scientific Lecture
COPD - On the Exponential Curve of Progress
John Heffner, MD, of the Medical University of South Carolina will the address COPD and its growing significance for respiratory therapists.

16th Annual Phil Kittredge Memorial Lecture
Mechanical Ventilation: How Did We Get Here and Where Are We Going?
Among therapists, Rich Branson, RRT, FAARC, of the University of Cincinnati Medical Center, is well recognized as an authority and visionary when it comes to mechanical ventilation.

27th Annual OPEN FORUM
Hundreds of original research papers will be showcased over the four days of the Congress, reviewing the latest in pediatric, adult, critical care, home care, and education. Learn about cutting edge research in the OPEN FORUM and see the latest technology in the Exhibit Hall.

17th Annual New Horizons Symposium
This year the topic is airway clearance techniques. This featured symposium attracts an audience of hundreds who come to immerse themselves in the most thorough review of a clinical topic.

Secure your early bird low-cost registration fee now! Register online at www.aarc.org. Also, continue checking the AARC website for the latest information on the Congress.

The AARC’s International Respiratory Congress is the gold standard of respiratory care meetings. The Congress boasts:
• The lowest cost of continuing education per credit of any show, anywhere.
• The largest and most impressive exhibit hall with the most vendors, where you can make you best deals on major purchases AT THE SHOW!
• The largest gathering of respiratory care experts and opinion-makers in the world.
• The most diverse and most dynamic series of lectures.
• The most opportunities for YOU to participate in your profession through research and networking.