



Notes from the Chair

by Steven E. Sittig, RRT

As I sit down to write this column, I am a mere 24 hours away from having returned from the AARC International Congress in Tampa, FL. Unfortunately we were unable to have a business meeting at the Congress, but I met many enthusiastic people at the meeting and have made some plans since that time that will set our Section back on track.

Here are some of the things to look forward to:

- We'll be having more regular email communiques from the AARC offices next year. If you don't get regular emails from the AARC now and have an email address, please make sure that it's part of your member record by writing to info@aacrc.org and asking to have your email included in your record.
- We'll have a new lapel pin designed for all members of our section. Send me your ideas.
- We'll get the Specialty Practitioner of the Year program back on track. Call me if you have previously submitted a nomination and want to get that reactivated for this coming year.

If you have ideas for studies or articles, I am available to help you get started or find the resources you might need to proceed. I would like to see an Open Forum at next year's conference based totally on transport-related subjects (see related articles in this issue), and I encourage you to begin thinking about abstract topics today so we can realize this goal. I am also hoping to have an all-transport lecture series in Las Vegas. My proposal should be in the hands of the planning committee by the time you receive this newsletter.

Until next time, may all of your transports end safely for you and your patients. ♦

Membership Recruitment: The Ball's in Our Court Now

by Steven E. Sittig, RRT

Prior to the start of the International Respiratory Congress in Tampa, I joined the other AARC section chairs in a meeting with incoming president David Shelledy and AARC executive office staff members to discuss various items related to the Specialty Sections. Ideas were expressed on how to spice up the section web sites and increase the worth of the Bulletins, particularly by increasing the focus on section members. However, the highest priority is increasing membership.

Most importantly for our section were discussions regarding the advisability of having the smaller sections such as Transport be "absorbed" by bigger sections. At the least, sections with limited memberships will be transitioned to more informal "Roundtable" status in 2004.

I would prefer that we remain a standalone section, as I feel the members of this section operate in a unique environment and require a special skills set. Also, those of us in the transport area form close bonds with other transport professionals, such as flight nurses and paramedics, and we need a section of our own in order to foster those relationships.

In order for the Transport Section to continue as a standalone section we need to have 350 members by December 31, 2003. I truly believe this is an attainable goal. We, as section members, need to approach our fellow transport RTs and explain the importance of having this form of national representation for our specialty. If every member recruits one new member, we will reach this goal. There are over 60 transport programs nationwide, not including those operated by the military, which also utilizes RTs in their programs. We are an underrepresented segment of the profession and need to work together to improve representation and expand our opportunities.

The ball is in our court . . . it's time to return serve and win match point. ♦

Call for Co-editor

by Steven E. Sittig, RRT

Since I have been elected chair of the section, I am looking for an interested member who would be willing serve as co-editor of the Bulletin. Your primary responsibility would be to help solicit articles from section members or other sources of interest to the sections members. Beginning in 2003, the Bulletin will be published on a quarterly basis and will be limited in length to four printed pages. The time commitment involved is generally around 10 hours per issue.

I will be available to assist you in these duties, but as chair, my focus needs to shift to section issues such as membership and promotion of the role RTs play on the transport team. If you feel you can help, please contact me at the addresses/number listed on page two. I have served in this role for over two years now, and it is a great way to meet transport RTs from across the country. I look forward to hearing from volunteers.

If you would like to contribute to the Bulletin, please send your pieces to me at the addresses listed on page 2. ♦

Section Connection

GET IT ON THE WEB:

Help the AARC increase its efficiency by signing up to receive the Bulletin via the section homepage on the AARC web site (www.aarc.org). To change your option to the electronic Bulletin, send an e-mail to: mendoza@aacrc.org.

SECTION LISTSERVE:

Start networking with your colleagues via the section listserv. Go to the section home page on www.aarc.org and follow the directions to sign up.

Send Us Your Email Address!

Beginning next year, the Bulletin will be published on a quarterly, rather than bimonthly, basis. But that doesn't mean we'll be communicating with you less often than before. The plan is to increase communication to members via a monthly email which will feature items of interest to the section. If you're already receiving email messages from the AARC, you will automatically receive these emails. If you aren't getting AARC email, that means we don't have your email address. To ensure you don't miss out on these timely publications, send your email address to: mendoza@aarc.org. ♦

Want to receive this newsletter electronically?

E-mail: mendoza@aarc.org for more information.

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Evaluation of Transport Isolette and Cabin Noise Levels in Four Medical Transport Aircraft

by Steven Sittig, RRT; Steven Sobzak, MIS, CSP, CIH; Jeff Nesbitt, BS, ASP; Joel Mashek, RRT; Mayo Clinic Rochester, MN, and Avera McKennan Hospital, Sioux Falls, SD

Purpose: Since there are few commercially designed and developed hearing protection systems for this small patient population in the air transport environment, we set up a study to look at the noise level exposure to newborns and small infants in four medically configured aircraft during flight.

Equipment: Three Quest (Type II) Noise Dosimeters, Model Q 300; one handheld CEL-266 OBS (Type I) Noise Level Meter.

Methods: Three type II dosimeters were used during each flight. One dosimeter was placed in the isolette, while two research team members measured noise level exposure in various points in the aircraft crew cabin. The CEL-266 handheld noise meter was utilized to measure real time levels at various points in the aircraft cabin and isolette during the flights.

Results: Recorded sound levels were time-weighted over the entire flight duration in dBA.

TYPE OF AIRCRAFT	ISOLETTE NOISE LEVELS	CREW CABIN NOISE LEVELS
BK-117	83	90
King Air B-200	78	84
Pilatus PC-12	80	86
Bell 222	82	88

Conclusion: Infants are exposed to excessively high noise levels during transport.

Discussion: Even though medical flight times maybe considered short-term exposure, it is a documented fact that hearing loss is related to cumulative noise exposure. Several studies have looked at noise levels in the NICU environment, but there is very little literature concerning high level noise exposure and preterm neonates and infants found in the transport environment. In this study, the measured noise levels were higher than the research team had envisioned.

There was no significant increase in isolette levels with the door or portholes open, as in doing cares/assessment during flight, in the fixed wing aircraft, but a small, brief 2dB increase was noted in the helicopters. During our testing, we attempted several engineering methods to decrease the environmental isolette noise, but without success.

Recent listserv postings indicate some transport programs attempt to modify adult designed hearing protection devices for this population, while others do nothing at all to protect infants from excessive noise. Exposure at such a young age cannot be harmless and this issue needs to be addressed to protect the hearing of this patient population. Our research is ongoing; we are now looking at noise levels in other medically configured aircraft and ground ambulances, studying other factors such as specific noise frequencies and vibration levels.

Editor's Note: As you can see, this project is straightforward and deals with an everyday situation. This is the kind of research we all can do, and if enough of us complete projects and submit them to the AARC Open Forum, we might be able to sponsor a Forum at the next Congress devoted exclusively to transport research. So look around next time you go out on transport and identify those areas begging for research. Then get started on a project. If you would like help in developing your ideas, feel free to contact me at the addresses/number on page two. ♦

Stages and Types of Hypoxia

by Steven E. Sittig, RRT

Hypoxia refers to a decrease in tissue oxygen or to an oxygen supply inadequate to meet tissue needs. Hypoxia disrupts the intracellular oxidative process and impairs cellular function. There are four stages of hypoxia that need to be considered when looking at hypoxia and its effects on humans. The four stages are divided by altitude.

The first stage is the indifferent stage, which occurs from sea level to 10,000 feet. In this stage, the body's reaction is to slightly increase the heart rate and ventilation. The second stage is the compensatory stage, which occurs from 10,000 to 15,000 feet. In this stage the body attempts to protect itself from hypoxia by increasing the heart rate, blood pressure and the depth and rate of breathing. Efficiency and performance of tasks requiring mental alertness become impaired at this stage. The third stage is the disturbance stage, which occurs from 15,000 to 20,000 feet. Dizziness, sleepiness, tunnel vision and cyanosis characterize this stage. Thinking becomes slowed and there is a loss of muscle coordination. The fourth stage of hypoxia is the critical stage. This stage, which occurs between 20,000 and 30,000 feet, features marked mental confusion and incapacitation. Unconsciousness generally occurs within minutes.

Hypoxia can be divided into four different types based on the physiologic effects placed on the body. The four types of hypoxia are: hypoxic, hypemic, stagnant and histotoxic (anyone remember hearing this during the Sputum Bowl questions?) Hypoxic hypoxia is defined as a deficiency in alveolar oxygen exchange. This oxygen deficiency may be caused by a reduction of partial pressure in inspired air, such as that which is seen at higher altitudes. Oxygen saturation of 98% at sea level would drop to 87% at 10,000 feet and to 60% at 22,000 feet in an unpressurized aircraft. Hypoxic hypoxia can also be caused by a reduction in the effective gas exchange area of the lung. Examples of this second cause of hypoxic hypoxia can be seen with pneumonia, pulmonary embolism, atelectasis, congenital heart disease, physiologic shunting, drowning and COPD, to name a few.

Hypemic hypoxia is the second type of hypoxia. It is mainly caused by a reduction in the oxygen carrying capacity of the blood. In instances of anemia or blood loss, the total oxygen capacity of the blood is reduced from the decrease in red blood cell count. Hypemic hypoxia interferes with the transportation phase of respiration by decreasing the oxygen carrying capacity of the blood. Examples of this type of hypoxia are anemias, hemorrhage, hemoglobin abnormalities, drugs such as sulfanilamides and nitrates, and chemicals such as cyanide or carbon monoxide.

The third type of hypoxia is stagnant hypoxia. This type occurs in conditions of decreased cardiac output, with pooling of blood in certain regions of the body and decreased or restricted blood flow to the tissues. Stagnant hypoxia interferes with the transportation phase of respiration by a reduction in systemic blood flow. Some specific causes of this type of hypoxia are heart failure, shock, pulmonary embolism, CPAP and gravitational forces such as acceleration and shock.

The final type of hypoxia is histotoxic hypoxia. This type of hypoxia occurs when metabolic disorders or poisoning of the cytochrome oxidase enzyme system results in the cell's inability to utilize molecular oxygen. In contrast to hypemic or stagnant hypoxia, histotoxic hypoxia interferes with the utilization phase of respiration because of the metabolite poisoning of cellular dysfunction. Specific causes of histotoxic hypoxemia are cyanide, carbon monoxide and alcohol.

Whether we are transporting patients by ground or air, as experts in respiratory physiology and gas laws we need to be aware of these different stages and types of hypoxia and the possible affects on our patients. Many times we are transporting patients who are a set up for more than one type of hypoxia, such as a patient in cardiac failure with a bad pneumonia. One need not transport by air for these forces to act on their patients; they can come into play during ground transports as well, such as completing a ground transport through a high mountain range. By knowing the patient's history, chief complaints and reason for transport, we can help avoid the serious effects of hypoxia on our patient.

Remembering Those We Lost

by Steven E. Sittig, RRT

This year has been another sad one for the transport arena, with the loss of life in aircraft crashes. We are all affected when we hear an aircraft has gone down with loss of life. We all know the additional risk we assume every time we go on another transport. If we didn't love our jobs and know we make a huge difference everyday, we might wonder if being involved in transport was a wise choice. But we only need to look at the faces of the patients we transport - and the faces of their families - to know how important we are. The trust they place in us and our skills makes everyday worthwhile. ♦

Don't Panic

Altruism is more common than panic at the site of a natural or manmade disaster, says a sociology professor from Rutgers University. In an article published in the fall issue of Contexts magazine, Lee Clarke outlines 50 years of research on disasters and extreme situations - including evidence from the 9/11 terror attacks - which he believes indicates people generally rise to the occasion when such events occur.

According to Clarke, panic is defined as an excessive feeling of alarm or fear leading to extravagant or injudicious efforts to secure personal safety. He notes people fleeing from the World Trade Center destruction exhibited the opposite behavior, for the most part leaving the scene in an orderly fashion and taking time to help others around them rather than rushing to save themselves at the expense of their fellow victims.

As Clarke explains, "We now know that almost everyone survived if they were below the floors where the airplanes struck the buildings. That is in large measure because people did not become hysterical but instead facilitated a successful evacuation." Clarke maintains that human nature in disasters is more a function of social factors than individual self-interest, and that Hollywood disaster movies showing people running wildly from catastrophe, knocking over their own grandmothers to save themselves is more myth than reality. "That's dead wrong," he says. "The rules of behavior in extreme situations are not much different from rules of ordinary life." ♦

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Crowding in EDs

If the emergency departments you encounter during transports to referring facilities seem more crowded than usual, you're not imagining things. According to a new report from the American College of Emergency Physicians, crowding in the nation's EDs has reached "sustained crisis levels." In the paper, which was published in a recent issue of *Annals of Emergency Medicine*, the authors call for the identification of policy strategies to address the problems, noting that while reforms will be difficult, "the time to act is now." ♦

Get the Latest 4-1-1 From the AARC

Did you know the AARC sends weekly news updates to AARC members through its *News Now@AARC* e-mail newsletter? Or that the executive office staff conducts surveys, issues AARC Store sales announcements, and sends other general messages via e-mail? If you aren't receiving these important updates, it's probably because your current e-mail address is not in your membership record. To update your membership information and receive all the AARC 4-1-1, contact Catalina at mendoza@aacrc.org. ♦

Need for Research Projects

by Steven E. Sittig, RRT

During the AARC Congress in Tampa, an interesting challenge was put forth by one of the physician lecturers to the community of transport respiratory therapists. This gentleman pointed out that there is very little published research by RTs in the area of transport showing our value to the patient and the science of transport medicine.

While this may seem like a daunting task, I know from experience it is a great way to advance the presence of RTs in the transport world. Every time we transport patients by ground or air, we see areas of practice or issues involving equipment that beg for research. As transport RTs, we need to show our worth on transport teams, and completing scientific research projects does just that. For example, my colleagues and I are currently looking at noise levels in the transport isolette in various transport vehicles. As you can see from the following abstract, one need only look around at everyday transport activities to find areas that could serve as research projects. ♦

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