Education Bulletin

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Notes From The Editor: Man Versus Machine

by David W. Chang, EdD, RRT

(The computer) Deep Blue showed signs of intelligence.
—World chess champion Garry Kasparov after a drawn chess game with Deep Blue.

In May of 1997, world chess champion Garry Kasparov lost the bragging rights between man and machine after a series of six chess games. His silicon nemesis, IBM's Deep Blue computer, beat him by one game. The series ended two games Deep Blue, one game Master Kasparov, and three drawn to a tie.

In one of the games, Kasparov offered Deep Blue a draw and the computer immediately accepted. This shows the use of quick and logical reasoning by a machine. Most humans would ponder the offer for a draw, at least for a few seconds. To Deep Blue's credit (and those who created and programmed Deep Blue), Kasparov said he thought his nemesis showed some signs of intelligence. Indeed, it is mind boggling for one to even think that he could compete against a machine that is capable of logically analyzing 200 million positions per second. Given that a typical game between these two lasts from three to four hours, Deep Blue has ample time to analyze the consequences of all possible moves in a chess game.

Computers play an integral part in respiratory care education. They are used extensively in information retrieval, tutorials, clinical simulations, and testing. The advantages of these tools are many. They are available for use anytime and virtually anywhere. Given the number of users they can serve at the same time, they are relatively inexpensive as well. They are just too good to be true!

However, the disadvantage of computer programs is that they cannot provide real clinical experience or teach critical thinking skills. I dare to say nothing can ever replace true clinical experience, and no computer program can ever be designed to simulate the senses or the variability of the clinical environment. How can patient outcomes be predicted or simulated when they can easily be altered by the change of a dial on the ventilator, an inadvertent machine or human error, or a combination of many subtle changes in a clinical environment?

The number of variables that can affect the outcome of a patient may not be as high as the analytical capability of Deep Blue. But as educators, we must not totally rely on machines. We should integrate computer programs into the curriculum and use them appropriately for information retrieval, tutorial, and proficiency testing—not as a replacement for true clinical experience.

Without real experience, virtual learning leads to virtual outcome. We must keep our focus on providing real clinical experiences to our students. Over reliance on machines will inevitably lead to failure in the teaching and learning of critical thinking skills. After all, machines are created by man. Logical thinking and artificial intelligence do not equal human thinking.

1997 Calendar	**Deadline**
Nov CRTT Exam	Sept 1
Dec RPFT Exam	Sept 1
Annual Convention (San Diego)	Nov 3-6
Respiratory Care Education Annual Papers	Dec 2

Notes From The Chair

by Mark L. Diana, MBA, RRT

When I attended the AARC International Convention last November in San Diego, I flew in a few days early because, in addition to being chair of the Education Section, I am also Virginia's delegate to the House of Delegates, which meets before the annual meeting. The day I flew in to San Diego must have been the one out of 365 when the weather there was bad. We could not land and were diverted to Ontario, a small town about two hours northeast of San Diego.

For reasons still unknown, the airline put us all on a bus (and our luggage on a different vehicle) and had us driven the two hours to the San Diego airport. (Not surprisingly, we arrived many hours before our luggage.) As fate would have it, Richard Walker, the new JRCRTE executive director, was also on this flight, along with Terry Gilmore, who was then speaker of the House (and is now past speaker). They had both boarded the plane in Dallas (where, by the way, we also experienced an aborted landing and an unscheduled plane change).

So, I was fortunate enough to get to know Richard a little on that trip. He, Terry, and I had the opportunity to talk about many things. What impressed me the most about Richard was his desire to move forward with JRCRTE and

address the accreditation needs of the respiratory therapy educational community, and his openness to input of all kinds. Richard called me not too long ago to bring me up-to-date about the activities of the Transition Committee, and to let me know that if I heard any concerns or questions about the transition process, to be sure to let folks know that he welcomes their input, and to give him a call.

We all have our biases, and one of mine involves the sharing of information. I believe organizations are best served when information is shared among all interested members. So, naturally, the first thing I asked Richard was if he would be interested in submitting regular updates on the transition process to the Education Section *Bulletin* to keep the information flowing. He went to the Committee with the idea, and they agreed, though it was too late for anything to go into this edition. However, you can look for information about the transition process and the development of the new essentials in upcoming issues.

When I was president of the Virginia Society for Respiratory Care, I learned how difficult it is to accomplish all of the things one normally wants to accomplish in a voluntary position. I reached the conclusion that in such a position, the best thing to do is to focus on one or two things. If I accomplish nothing else as chair of the Education Section, I will increase the communication among members of our section, the AARC leadership, JRCRTE/CoARC, the NBRC, and the other specialty sections, all of whom have a stake in how we run our programs. That is why I have asked Richard to provide us with regular updates on the transition to a new accreditation committee and essentials. It's also why I have started the listserv, which many of you have already subscribed to. For those of you who have yet to subscribe, you are missing a golden opportunity.

Although activity on the list has been light recently, important issues are being discussed. For example, AARC President Kerry George recently posted a request for feedback on the issue of accreditation and an associate degree entry level, just what that means, and how the credentialing process should change. This presents us all with a rare opportunity to express our views to the leaders in our profession who will be making decisions in areas that affect us all. Sign on to the AARC Ed Section Listserv by sending a message to: < berrier@aarc.org > and asking to subscribe.

In the last issue of the *Bulletin*, I asked you all to share with us the things you are doing to respond to the many calls for change in health care delivery and the education of the health care workforce. I know many of you are doing new and innovative things, so please take just a few minutes to write them down and send them in so the rest of us can benefit from your experience. In particular, I am interested in how you are dealing with issues related to clinical placement in agencies where there may no longer be a central department, where the staffing is too low to support instruction, or where the agencies are not doing the kinds of things your students need to learn. I am also interested in the kinds of workforce development you may be doing. What kinds of training are you providing the existing workforce, and how are you delivering it (i.e., are you using traditional methods or alternatives—perhaps technology)?

The last item I have for this column concerns the AARC's effort to restructure its own operations. I mentioned this initiative at the section meeting in San Diego, and it will be on the agenda at the section meeting in Phoenix. If you are not aware of the proposal by the Task Force on Organizational Restructuring, you can obtain a copy from your state society's delegate to the AARC. Trudy Watson is the chair of the Task Force. They have done a tremendous amount of work and have made some far-reaching proposals. There are many issues related to the proposal, but, in this context, I am most interested in the proposal's impact on the specialty sections. Specifically, the proposal states that: (1) A Section Chair will serve a two year term as a Director, (2) The Section Chair-elect will be elected by the membership of the section, and (3) Criteria for Specialty Sections will undergo continued review, with changes anticipated. I encourage each of you to find out more about this proposal, and to think about how it will affect the Education Section so you can provide input to this process.

Many times we feel as if decisions that directly affect us are made without our input. That may be true, and if it is, there can only be two reasons: (1) our input was not asked for and not acknowledged, or (2) we did not provide input. But one thing is clear. Our input can be heard or disregarded only if we provide it.

In This Issue

ARCF "Silent Auction" Offers RC Managers The Chance To Acquire Equipment And Supplies At A Discount

In an effort to increase the amount of funds available for important research projects and other programs aimed at positioning the RCP for success in the managed care environment, the American Respiratory Care Foundation is planning to conduct its first-ever "Silent Auction" during

the AARC's 43rd International Respiratory Congress, scheduled for December 6-9 in New Orleans, LA. All AARC members and officially registered attendees at the Congress will be eligible to bid onsite or they may participate in the pre-meeting bidding that will take place November 1-30.

While many of the items at the auction will be geared toward individual bidders, much of the inventory will consist of respiratory equipment and supplies designed to appeal to respiratory care managers working under increasingly restrictive budget constraints. Since opening bids for all donated items will be set at approximately 25% of retail value, the Silent Auction offers an *outstanding opportunity* for managers in all care settings to acquire much needed equipment at discounted prices.

RC managers or others with purchasing authority are encouraged to take advantage of this opportunity by working with their purchasing departments now to acquire the necessary purchase requisitions. In most cases, auction items will be shipped directly *by* the donor *to* the individual or institution with the winning bid.

A preliminary catalog of items will be included in the October issue of *AARC Times* to assist bidders in planning for the bidding process and to allow those unable to attend the Congress the opportunity to participate in pre-meeting bidding. A final catalog of items will be distributed at the meeting in December.

All funds raised by the auction will go directly into the ARCF's unrestricted fund supporting educational grants, research projects, practice surveys, consensus conferences, and other philanthropic programs.

The Foundation is currently soliciting items for the auction from a variety of sources and plans to have a wide selection of products in all price ranges available for bidding. The solicitation of items for the auction will continue through September 30. Anyone wishing to donate an item (minimum estimated value of $100) may do so by contacting Brenda DeMayo at the ARCF Executive Office at 11030 Ables Lane, Dallas, TX 75229, (972) 243-2272.

INFORMATION-PROCESSING LEARNING THEORY, PART I: MEMORY STRUCTURES AND PROCESSES©

by Arthur Jones, EdD, RRT

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Editor's Note: This is part one of a two part article on information-processing learning theory. The second part of the article will appear in the Fall issue of the Bulletin.

Whether they are aware of it or not, instructors select and apply instructional methods that are based on specific learning paradigms. In turn, the bases for these paradigms, or models, arise from distinct philosophic and psychological paradigms. The purpose of this article is to contrast two learning models: behaviorism and information-processing (cognitivist). Then we will focus on the information-processing model to describe and explain its structures and processes. Part two of this series will focus on implications of information-processing theory for learning and instruction.

Behaviorism

S ==> R ==> Sr

Figure 1: Behaviorist Mode

Figure 1 shows the basic behaviorist model: an instructional message presented to the learner (S), a response by the learner (R), another stimulus presented to the learner to reinforce the behavior (Sr).

Most likely, the reader is familiar with behaviorism as based on the stimulus-response mechanism. In the behaviorist model, learning occurs when a stimulus representing the to-be-learned information is presented to the learner, who responds to the stimulus. When the correct response is elicited from the learner, he or she has learned the information. Any response by the learner elicits another message from the instructor, which is intended to encourage repetition of the correct response. This message is called reinforcement.

Behaviorist psychology dominated instructional theory and practice for many years, culminating with B.F. Skinner's teaching machines, which purportedly would replace classroom teachers. Adherents to behaviorism made important contributions to instructional theory and practice. Figure 2 lists a few of those contributions.

Behaviorism, along with its instructional methods, has been soundly criticized by educational psychologists, particularly developmentalists and cognitivists. Still, there is little doubt that certain elements of behaviorism are effective; therefore, they will remain in use. In fact, some of these elements are practically indispensable to instruction. Specifically, our competency-based instruction has strong behaviorist roots.

- **Instructional objectives**
- **Competency-based education**
- **Task analysis**
- **Instructional systems design**
- **Reinforcement (feedback)**

Figure 2: Contributions of behaviorism

The behaviorist model has great appeal, especially for researchers. The model is tidy, and everything in the model is objective and measurable. So why would some educational psychologists like to hang B.F. Skinner in effigy? What's the problem with behaviorism? Look at Figure 1 and decide what is missing.

There is no representation of the brain in the behaviorist model. Rather, the brain is sort of a "black box" to behaviorists, who believe we don't know enough about the brain to include it in a learning model. One major criticism of behaviorism, then, is that it is de-humanizing, because it considers the brain a non-entity. The second major criticism of behaviorism is that it views learners as passive recipients of input, rather than as active participants in learning.

Information Processing

The information-processing model gained prominence along with cognitive psychology and computer models for memory. Adherents to information processing explain learning in terms of memory structures and information processes. In contrast to behaviorism, the information processing model takes mental processes into account and views learners as active participants who construct their own knowledge. Furthermore, they construct knowledge based on information that is already in their memories.

There are many variations and explanations within cognitive psychology, and these continue to evolve. The reader is cautioned that the authors have selected what they consider the best explanations and models. Therefore, some biases are reflected here. Memory structures and information-processing are central to this discussion.

Memory Structures

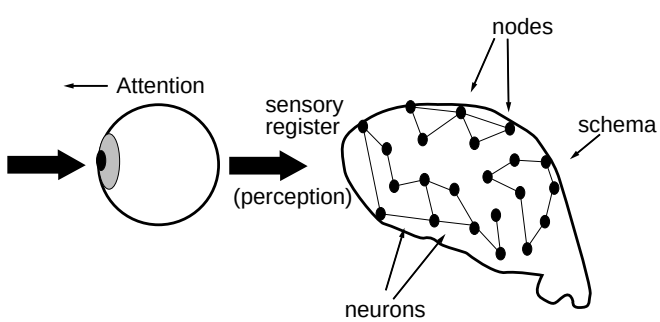

Figure 3: Memory structures and processes

Current theory favors a single compartment, dual-purpose memory store that serves as both long-term store (LTS) and short-term store (STS).[2] In memory, information exists in some form within structures called "nodes." These nodes alternate between the active and dormant states.[3] When a node is active, it is STS, which is also known as "working memory." When dormant, it is LTS.

Information is available but dormant in LTS until accessed and activated by control processes. These control processes are not well-understood.[3] Activation of information in the LTS is called "retrieval." During retrieval, nodes of LTS become working memory, and the information they contain is remembered.

Nodes are interconnected by a network of neurons in a structure called a "'schema." Theoretically, schemata (plural) consist of nodes that contain pre-existing information, as well as uncommitted slots for new and related information. Therefore, schemata provide information frameworks to help us make sense of the world about us and make necessary predictions about our environment.[4]

Schemata are important to learning because they provide structure and related information for new, incoming information. For example, prior knowledge about the heart includes certain facts, concepts, and principles about the organ. The organization of this information about the heart would be the "heart schema," which has slots for further information about the heart so that new information can be stored with related information within a structure that encourages its processing.

Episodic versus semantic memory

The LTS contains two categories of memory: episodic and semantic.[5] Episodic memories are autobiographical data about events which are linked to space and time. Examples of episodic memory are a person's face, or an event like a birthday. It is usually episodic memories that are challenged by trial lawyers, as there is much evidence of its vulnerability to time and interference. Importantly, episodic memory is not the memory of reasoning. Rather, reasoning processes use semantic memory.

Semantic memory consists of facts, concepts, interrelationships, and meanings. While episodic information originates as sensation, with events as the unit of information, semantic information arises from comprehension. A unit of information in semantic memory is an "idea." Regardless, both categories of memory support learning, and semantic and episodic memories probably interact to support both encoding and retrieval.[6]

For example, a new word starts as episodic memory. Initially the word is only an image, which is linked to an event with which it occurs. But as the word gains meaning and is related to concepts in LTS, it becomes semantic information. The reader may see here the word, "sesquipedalianism," for the first time. You can practice memorizing this word until you turn blue, but it remains episodic memory because it is only a string of letters. However, after you learn that sesquipedalianism means the practice of using big words, it takes on meaning and becomes semantic memory. As semantic memory, the word is less connected to space, events, and time, and more connected to concepts related to its meaning.

The location of a semantic node relates to its message, and the distance between nodes is inversely proportional to the relatedness of their messages. This is called semantic distance. For instance, on a semantic scale, "dog" and "cat" are closer than "dog" and "anvil." If a new bit of information comes along that has no relationship to any information in memory, it has infinite semantic distance.

Information Processes

- **Attention: active selection of information from the environment.**
- **Encoding: conversion of information into mnemonic code.**
- **Retrieval: activation of information in LTS**

Figure 4: Information processes

There are three primary information processes: attention, encoding, and retrieval. These are listed in Figure 4 and explained in proceeding sections.

Attention: At any moment, more information than can be simultaneously processed in consciousness is available, both from the environment and from within memory. The process responsible for selecting information for processing in memory is called attention. Early models for attention regarded it as a filter to prevent extraneous information from overloading working memory. However, more recent models view attention as an act of selecting information rather than filtering it out.[7]

Encoding: Encoding is the process that converts incoming sensory information into memory code, then integrates it into the LTS. Incoming information is detected by the senses, selected by attention, then converted into code. Different kinds of memory probably result from different kinds of encoding.

Craik and Lockhart's[8] "levels of processing" theory attempts to account for encoding variability. According to this theory, working memory processes incoming information in different ways. Information may be superficially processed, resulting in a less durable and meaningful memory trace, or it may be deeply processed, resulting in a more meaningful and durable trace.

This processing involves rehearsal, which can be passive or active. Passive rehearsal is superficial processing that works by mental repetition of information in working memory's rehearsal buffer. Active rehearsal, which is deeper processing, uses pre-existing information to elaborate on incoming information. This involves generating numerous nodal interconnections. The proliferation of internodal connections increases the probability for retrieval of information by providing more routes for access and shorter semantic distances.

Another important concept is "'encoding specificity," which refers to the linkage of information to events, or context.[5] Encoding specificity implies that the context in which incoming information is encoded determines the cues that trigger retrieval of the information. For example, a learner may be able to recall information when experiencing circumstances similar to those under which they were first encoded.

This explains why witnesses are returned to crime scenes in hopes of fostering recall of events. It also explains why certain cues, like odors, trigger recall. This phenomenon is called "context sensitivity." On the other hand, loss of contextual cues for information causes retrieval failure. That is, information available in LTS becomes inaccessible to consciousness because the cues to find it are lost.

Retrieval: Retrieval is the same as activation of schemata, which is the same as remembering. For a bit of information (the target) to be retrieved, it must be located by a control processor, which searches for it in the LTS. The search proceeds as a process called spreading activation, wherein an activation signal spreads from an initial search point through nodes that contain information related to the target. These nodes are subsequently activated, which results in a flow of energy along neural pathways until the target node is activated.[9]

Recall that elaborative encoding increases the neural connections among nodes. Similarly, elaboration increases the probability for retrieval by increasing accessibility of information. Retrieval is supported by encoding to-be-learned information with related information, because this results in shorter semantic distances between accessed nodes and target information.

Conclusions

This article has compared the behaviorist and cognitivist theories of learning and learners. Both theories have their strengths; therefore, both apply to allied health instruction. Such theories are important to instructors because they can be useful in guiding instructional development. We have focused on the cognitivist theories about memory structures and information processing because they attempt to explain why instructional and learning strategies work. Part two of this article will describe some of those strategies and offer explanations as to why they support learning.

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Interdisciplinary Course For Respiratory Care And Physical Therapy Students At A University Health Science Center

by Oliver J. Drumheller, EdD, RRT, and David C. Shelledy, PhD, RRT

Oliver J. Drumheller is director of clinical education and David C. Shelledy is chair, department of respiratory care, at the University of Texas Health Science Center at San Antonio.

The respiratory care and physical therapy departments in the school of allied health sciences at the University of Texas Health Science Center at San Antonio developed and implemented an interdisciplinary course for the Spring 1997 semester. Titled "Rehabilitation, Restorative, and Extended Care," the course was revised from an existing course to meet the special needs of both departments. Several planning sessions were held between departments to discuss, and agree upon, course content, curriculum development, and instructional methods.

The idea for the course came after the two departments realized they had much common ground in this area. Respiratory care sought to expand its rehabilitation and home care course to include subacute and skilled nursing restorative care. Physical therapy was seeking an instructor for its rehabilitation course and contacted respiratory care for assistance. This communication led to the current collaboration. A course revision was submitted and approved, allowing the change. In addition, a new faculty member was selected to teach the revised course, thus accommodating implementation of the new course content.

The number of credit hours to award for the course was another problem that had to be resolved. While the original physical therapy course was a four hour course, the original respiratory care course was a three hour course. This issue was resolved by having the physical therapy students complete additional course work provided separately by their department.

The course work consists of 15 units of instruction, including classroom presentations, demonstrations, and hands-on practice with procedures and equipment. A class project was designed wherein students develop a pulmonary rehabilitation program using information from the course, outside research, and student-initiated field trips. The project was divided into its component parts, and small groups made up of both respiratory care and physical therapy students completed reports and prepared class presentations. Each group was self-governed, with a designated leader assigned to coordinate efforts between the groups.

Results have been positive for this interdisciplinary course. The students learned more about each other and their respective professions. The team work necessary to complete class exercises and the project was very beneficial for all of the students. The only downside was a small increase in costs for copies and supplies, and the need to move to a larger classroom to accommodate the increased class size. Future developments may include having one project team each year update and revise the rehabilitation project. The possibility of developing an interdisciplinary rehabilitation program affiliated with our school also exists.

As an example of an interdisciplinary course within allied health, this endeavor has to be classified as a success.

Problem-Based Learning In The Respiratory Care Curriculum: Initial Experiences

by Bruce Feistner

Bruce Feistner is respiratory care program director at Dakota State University in Madison, SD.

Tell me, and I'll forget. Show me, and I may not remember. Involve me, and I'll understand.
—Native American Proverb

We have been moving toward problem-based learning (PBL) in our curriculum over the past year. Since we are so new to the idea, and others seem to be also, a report on our progress may stimulate renewed thought and discussion from other educators.

The Fall 1996 *Bulletin* included an interesting article by Beth Brown and Lynda Thomas-Goodfellow on "Rethinking of Instruction: Situated Cognition in RT Instruction." This seems to describe the processes we have been attempting at Dakota State. However, I must preface my comments by saying that what we are doing is not the full-blown, problem-based learning seen in other programs and medical schools. But it is an attempt to move toward that goal.

Unlike the standard lecture/listen format, problem-based learning is a technique which involves all the students in a more interactive manner. Clinical relevancies are always drawn. Instead of just feeding facts (recall-type items) to the students, more application and analysis is done. In our program, we bring in clinical cases, simulations, and other tools to add an additional angle to the class. Students are (would be/should be/may be) forced to "think" actively instead of just sitting there listening and not absorbing. Other ideas for PBL classrooms may include practicing differential diagnoses, interpreting chest x-rays to see what caused those changes and what to do about them, interpreting ABGs and suggesting changes to the doctor based on those numbers, and understanding the rationale for facts and therapies.

At Dakota State, we hand out worksheets a few days before each classroom activity and ask the students to fill them in before coming to class. That way, a more interactive discussion can be held. In order to ensure that the students don't slip and fail to fill in their worksheets, we give some points for completed worksheets.

The worksheets don't need to be overly fancy. Their purpose is simply to give the students a starting point. From there, the instructor encourages the students and directs the discussion. Handouts may include a case discussion, or basic facts leading to a differential diagnosis, or whatever else is needed to bring the students to class better prepared.

Using problem-based learning in the classroom allows the

student to practice skills that will be necessary in the clinical environment. Indeed, when the student is more actively involved in class, and actively thinking about the rationale behind what is being discussed, it is easier to continue this line of reasoning when it's time to move on to the clinical areas. The main purpose of PBL is to produce critical thinkers, not just button pushers and knob turners.

Since most of us are just testing the waters in the area of problem-based learning, sharing ideas and getting feedback from other educators will benefit us all. A good place for this discussion might be on the Educators' Mailing List on e-mail, or in this newsletter. Anything we can do to make classroom experiences more real and relevant to the student can only strengthen our product—tomorrow's practitioner.

WANTED: Authors To Write AARC Individual Independent Study Packets (IISPs)

The AARC Education Committee is seeking RCPs who would like to make a lasting contribution to the respiratory care profession by writing a new, or revising an existing, IISPs. IISPs are a popular, low cost method of enhancing the education of RCPs in a large variety of topics.

Interested authors need only submit a CV/resume and topic with objectives to Karen Boudin, chair of the IISP subcommittee. Writing experience is helpful, but certainly not necessary. If you have interest or expertise in a particular subject area, you're the one we want! New authors receive an existing IISP to use as a template or model for formatting their own. Authors will receive $500 for writing a new IISP and $250 for revising an existing but outdated IISP.

Below is a list of 20 important topics that have been targeted as new IISPs topics. Additionally, there is a list of IISPs that need revision and a complete list of current IISPs. If you are interested in taking on this job, or could recommend a colleague who might be interesting in serving as an author, please contact: Karen M. Boudin, MA, RRT, Stanford Health Services, Respiratory Care Services HC023, 300 Pasteur Dr., Stanford, CA 94305, (415) 725-4559, FAX (415) 723-0957, e-mail: boudin_k@hosp.stanford.edu

New suggested IISP topics

Trends in Mechanical Ventilation: Part 1—Permissive Hypercapnea
Trends in Mechanical Ventilation: Part 2—Volutrauma
Trends in Mechanical Ventilation: Part 3—Pressure Control
Trends in Mechanical Ventilation: Part 4—Nitric Oxide
Trends in Mechanical Ventilation: Part 5—Pressure Support
High Frequency Jet Ventilation
Transporting Ventilator Patients
Asthma Education
ARDS
Sleep Apnea
Phlebotomy
Electrolyte Analysis/Operation of STAT Labs
Fluid and Electrolytes
Pulmonary Clearance Techniques
Respiratory Management of Hypothermia
Hyperbaric Oxygenation
Case Management
Gerontology
Health Care Planning for the RCP
Quality of Life Measures in Respiratory Critical Care

IISPs that must be revised

CP6	Tracheal Intubation III: Equipment Procedures for Intubation
CS12&13	Electrical Safety Respiratory Therapy
PE3-6	Pulmonary Function Assessment

Current IISPs

Clinical Practice

CP3 Chest Tubes and Pleural Drainage
CP4 Tracheal Intubation I: Upper Airway Anatomy and Goals of Intubation
CP5 Tracheal Intubation II: Routes of Intubation
CP6 Tracheal Intubation III: Equipment Procedures for Intubation
CP7 Respiratory Management of Neuromuscular Crisis
CP8 Respiratory Management of Flail Chest
CP9 Respiratory Management of Head Trauma
CP10 Pulmonary Edema

Clinical Science

CS5 Transpulmonary Pressure Changes in Breathing
CS6 Lung Mechanics
CS7 Practical Application of Gas Laws
CS8 Tonicity of Solutions and the Respiratory Tract
CS9 Carbon Monoxide Inhalation: Introduction to Physiologic Effects and Respiratory Management
CS12 Electrical Safety in Respiratory Therapy I: Basic Electrical Circuitry
CS13 Electrical Safety in Respiratory Therapy II: Identification of Electrical Hazards
CS14 Bronchodilators I: Sympathomimetic Amines
CS15 Bronchodilators II: Anti-Cholinergics and Xanthines
CS16 Calculation and Preparation of Respiratory Medications
CS17 Microbiology for Respiratory Therapy: A Review of Microbial Growth and Cross-Contamination
CS18 Classification of Mechanical Ventilators I
CS19 Classification of Mechancial Ventilators II
CS20 Classification of Mechanical Ventilators III
CS21 Ventilation/Perfusion Relationships in Health and Disease

Neonatal

NN1 Recognition and Stabilization of the Premature Infant in Respiratory Distress

Patient Evaluation

PE3 Pulmonary Function Assessment I: Basic Screening Studies
PE4 Pulmonary Function Assessment II: Bedside Studies
PE5 Pulmonary Function Assessment III: Lung Volume Determination and Closing Volume Studies

PE6 Body Plethysmography
PE7 Sources of Error in the Determination of Blood Gas Values and pH
PE8 Temperature Adjustment of Blood Gases and pH
PE9 Measurement of Static Compliances and Dynamic Characteristics Curves During Mechanical Ventilation
PE10 Arterial Blood Gas Interpretation
PE11 An Introduction to Hemodynamic Monitoring
PE12 Physical Assessment

Smoking Cessation
SC1 Nicotine Dependency Evaluation and Treatment
SC2 Bedside Counseling of the Hospitalized Smoker

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Editor's Note: The following individuals have agreed to serve as members of the section's publications committee for 1997.

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FYI...

Consensus Conference proceedings available

RC educators who have yet to obtain a copy of the proceedings from the AARC's groundbreaking Consensus Conferences on respiratory care education may acquire a copy(s) by calling or writing the AARC Executive Office at the number/address that appears on the last page of this issue of the *Bulletin*. These important documents include—

YEAR 2001: Delineating the Educational Direction for the Future Respiratory Care Practitioner; Proceedings of a National Consensus Conference on Respiratory Care Education, October 1992.

YEAR 2001: An Action Agenda; Proceedings of the Second National Consensus Conference on Respiratory Care Education, October 1993.

Program entices high schoolers into health care careers

Getting high school students fired up about careers in health care has been an uphill battle for many RC program directors. Here's an idea from Pennsylvania, however, that might just do the trick.

The Hospital Council of Western Pennsylvania recently sponsored a HealthQuest Challenge that drew participation from more than 350 high school students from 60 schools across western Pennsylvania. The third annual question-and-answer competition, which took place in Pittsburgh in late April, focuses on health education and health career knowledge.

The key to the event's success is participation from area health care professionals. Each team of six students is sponsored by an area hospital, which helps to coach the kids for the event by providing them with additional health care information, giving them tours of their hospital facilities, assisting them with research, holding mock competitions, and providing them with transportation to the competition. Educational institutions get into the act as well, by setting up displays highlighting their various health education programs in an exhibit hall during the event. (Source: PRNewswire, 4/23/97)

AARC urges caution as FDA proceeds toward CFC-free metered dose inhalers

The AARC recently provided comments to the Food and Drug Administration on their Advanced Notice of Proposed Rule Making regarding changes to regulations affecting the propellant in metered dose inhalers (MDIs).

The FDA is seeking to implement the Montreal Protocol, a pact that will ultimately result in a worldwide ban on chlorofluorocarbon (CFC) products. CFC ingredients are the propellants that are used to deliver medications to patients suffering from asthma, emphysema and other diseases through an MDI. Respiratory therapists are in the forefront of health care providers who educate and train patients to properly use MDIs.

The FDA is seeking to phase out current CFC products as CFC-free propellants become available. However, in a letter from AARC President Kerry George, the association warned the FDA about not removing current products from the marketplace until appropriate alternate products are widely available. In his letter to the FDA, George says, "We believe patients and the physicians who prescribe the MDIs must have a wide range of options until an equally wide range of CFC-free MDIs are available. Elimination of a particular active ingredient after 12 months of a CFC-free alternative, will not afford this necessary range of options."

George also stated that Medicare has discontinued large and small volume nebulizers and hand-held ultrasonic nebulizers as covered devices. This policy "has the result of transferring hundreds of thousands of Medicare patients from clinically effective and appropriate MDI alternatives into using MDIs. We believe this will make the FDA's goal of easing the transition to CFC-free MDIs more difficult, because usage and dependence on current MDIs have now tremendously been increased." said George.

He also urged the FDA to work with and educate Medicare policymakers on the inappropriateness of this Medicare regulation.

HRSA simplifies grant information

In an effort to simplify the competitive grants application process, the Health Resources and Services Administration has consolidated around 80 separate grant announcements into a single, user-friendly annual publication.

The Competitive Grant Preview, which was published in the *Federal Register* on April 22 and made available to the general public in May, describes each of HRSA's fiscal year 1997 discretionary grant programs. Included for each program are the eligibility criteria, application deadlines, projected award dates, program priorities, and available funds. The general grant review criteria are also spelled out, and a contact person is listed for each program to assist interested parties in obtaining more information.

HRSA grants fund, among other things, Ryan White CARE Act HIV/AIDS programs, maternal and child health

programs, community and migrant health centers, and programs to improve the diversity and distribution of the nation's health care workforce. HRSA hopes that the new publication will generate greater numbers of applications for these important programs. Says HRSA Acting Administrator Claude Earl Fox, MD, MPH, "We've simplified and integrated the process to encourage more organizations to apply for HRSA's grants." To obtain a free copy of the publication, call toll free at (888) 333-HRSA. (Source: *HRSA News*, 4/24/97)

Conference encourages volunteerism among health education students

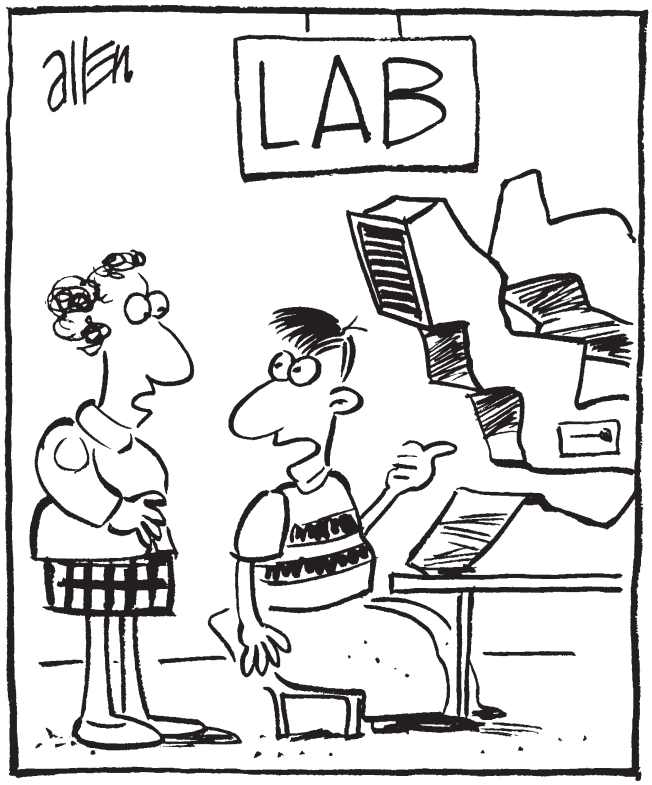
Encouraging the nation's health education students to become more involved in community service was the purpose of more than 500 educators, students, and community leaders who gathered in San Francisco last April for a University of California at San Francisco conference called "Building Sustainable Futures Together."

Playing on the President's Summit for America's Future, a national effort to increase volunteerism headed by former general Colin Powell, the UCSF conference was aimed at developing campus-community partnerships that make health care education more responsive to community needs. Says Sarena Seifer, MD, executive director of the Community-Campus Partnerships for Health at UCSF, "To improve health, future health professionals will need to be clinically competent as well as culturally competent and comfortable working in diverse community settings. Without these skills, our health care system remains threatened by an unequipped workforce." (Source: Business Wire, 4/22/97)

Add your name to the list: *RCPs can assist AHCPR by signing up to review grant applications*

Since its inception in the late 1980s, the Department of Health and Human Service's Agency for Health Care Policy and Review (AHCPR) has provided important funding and oversight for a wide range of research efforts aimed at identifying best medical practices. Every year, hundreds of health professionals across the nation assist the agency in that goal by serving as reviewers in the peer review of research grant applications. If you would like to add your name to the list, please forward a current curriculum vitae to: AHCPR, Office of Scientific Affairs, Attention: Bonnie Edwards, 2101 East Jefferson Street, Suite 400, Rockville, MD 20852, or fax your CV to Bonnie Edwards at (301) 594-0154. (Source: *Research Activities*, 3/97)

Beddoes Hall



I suppose your going to tell me this is not a vent too!

Specialty Practitioner of the Year

Don't forget to make your nominations for the Education *Specialty Practitioner of the Year*. This honor is given to an outstanding practitioner from this Section each year at the AARC's Annual Meeting.

The recipient of this award will be determined by the Section Chair or a selection committee appointed by the chair. Each nominee must be a member of the AARC and a member of the Education Section.

Use the following form to send in your nominations for this important award—

I would like to nominate _____ for *Education Specialty Practitioner of the Year* because

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____	_____
Nominee	Your Name
_____	_____
Hospital/School	Hospital/School
_____	_____
Address	Address
_____	_____
City, State, Zip	City, State, Zip
_____	_____
Phone	Phone

Mail or FAX your nomination to the Section Chair at the address/number listed on the last page of this issue.

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