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NOTES FROM THE EDITOR: WHAT AN ASSOCIATE DEGREE COULD BE

by David W. Chang, EdD, RRT

Over the next several years, the major task facing program directors and faculties of RT technician programs will be the conversion from non-degree granting to associate degree (AD) programs. As I get older (though not necessarily wiser), I have become more conservative in my way of thinking and have learned to take a contrary point of view in almost everything I see or read. For this reason alone, I want to share a few personal thoughts (based on my own experiences in teaching in both therapist and technician programs) that have not been widely discussed among RT educators, particularly those whose responsibilities do not involve technician level students —

Balanced curriculum: Because of state or institutional accreditation requirements, most of the additional program requirements for an AD may go toward non-professional, liberal arts courses. Program planners must keep a delicate balance in the curriculum so that professional courses and science prerequisites will not be overshadowed by other degree requirements. At the same time, a meaningful AD curriculum should prepare a student to become proficient in reading and writing.

Non-traditional articulations: Is an articulation model available or will one be available very soon? Or must everyone invent his or her own wheels? In addition to nearby colleges and universities that may provide articulation arrangements for the technician programs, what about seeking out other degree granting institutions that use non-traditional approaches? Weekend courses and independent study models have been used quite successfully in the past. Are these teaching methodologies and methods of delivery too non-traditional to be worthy of consideration?

Students with prior degrees: Will provisions be made for students with prior degrees (associate and above)? Will we be bold enough to consider these students for admission by waiving some of the science requirements? If a working mechanism can be found to accommodate these students, it may create a win-win situation for the programs, students, and our profession.

Lateral and vertical mobility: Will the AD curriculum allow students to move laterally from institution to institution, and graduates to move vertically from AD programs to BS degree programs? New and existing AD and BS degree programs should work together toward this common goal. Given the number and speed of technological advances and opportunities before us, a BS degree in RT may very well be in our future.

Key players: The organizations that are shaping the outcome of this AD entry level concept must include as many program and clinical directors from non-degree granting technician programs as possible. The logic behind this idea? These program personnel cause the rubber to hit the road. They will be the people carrying out most of the thinking, planning, and doing in the overall scheme of curriculum conversion.

The future of respiratory care is bright for all RCPs. But it will be brighter if the implementation process for this new AD entry level is logical. The AD curriculum conversion should be carried out with creativity to maximize efficiency and increase the flexibility of our programs in accommodating students. Indeed, the process of curriculum conversion will offer a once-in-a-lifetime opportunity. (After all, who wants to do this again?)



NOTES FROM THE CHAIR

by Mark Diana, MBA, RRT

The Education Section held its first meeting of the year on July 25 in Phoenix, AZ, during another successful Summer Forum. After the standing committee reports, a lively discussion ensued regarding the presentation by the AARC, JRCRTE, NBRC, and the Transition Group. The Transition Group presented proposed timelines for revising the Essentials, which are presented here for your information —

1997

Data retrieval/analysis (NBRC/AARC/JRCRTE)

1997 Calendar

Deadline

Respiratory Care Education Annual International Respiratory Congress (New Orleans)	Dec 1, 1997
March 1998 CRTT Exam	Dec 6-9, 1997
June 1998 RRT Exam	Jan 1, 1998
June 1998 CPFT Exam	Feb 1, 1998
July 1998 CRTT Exam	Apr 1, 1998
1998 Summer Forum (Naples, FL)	May 1, 1998
	Jul 17-19, 1998

- 1/98 Committee on Accreditation for Respiratory Care (CoARC) begins accreditation activities
- 1/98-6/98 CoARC reviews data/drafts Essentials (revisions) for Program Requirements, including associate degree entry

(Full sponsor approval of revisions required)

- 11/98 CoARC meets to discuss/propose new Essentials
- 11/98 AARC meets to discuss/adopt revised Essentials
- 5/99 ATS meets to discuss/adopt revised Essentials
- 10/99 ASA meets to discuss/adopt revised Essentials
- 10/99 ACCP meets to discuss/adopt revised Essentials
- 10/99 CAAHEP conducts public hearing on proposed Essentials

If CAAHEP accepts revisions, then:

- 1/00-12/00 Programs phase into revised Essentials
- 1/02 First class enters under revised Essentials
- 12/31/04 All programs must be in compliance

In addition to this timeline, the Transition Group expressed the desire to limit changes in the reporting and format of outcome data, and they expressed a commitment to streamlining the accreditation process where feasible.

In a joint position statement on the educational preparation for entry into practice as a respiratory care practitioner, the AARC, NBRC and JRCRTE state: "It is obvious that such a significant change in the Essentials will require extensive dialogue. To facilitate a consensus, information will be provided to, and input solicited from, all communities of interest, including employers, educators, students, educational institutions, and physician sponsoring organizations, during a formal discussion period. Once agreement is reached, the four sponsoring organizations of the new CoARC, as well as the CAAHEP, will need to approve any new changes."

Education Section members who were present at this meeting expressed the strong desire to provide input into the revised Essentials. The discussion focused on several aspects of the process. First, the section members expressed the desire to receive a formal request for input. The discussion then centered on whether that input should be requested from individual educational institutions and program faculty, or from the Education Section itself. The consensus was that the request should be made to both individual educators and to the Education Section. Further, the group directed me to write a letter to the appropriate individuals formally requesting this action.

Second, the discussion focused on the actual process of providing input. Clearly, as I said at the end of my column in the last *Bulletin*, input can only be listened to if we provide it, so it is incumbent upon us, as individual stakeholders in the accreditation process, to provide our input when given the opportunity. So when the request for input comes to you, be sure to take the opportunity.

That leaves us with the issue of how to provide input from the Education Section as a whole. The consensus of the group was that the best way to accomplish this was through the listserv. (Once again, if you have not joined the Education Section listserv, send a message to <berrier@aarc.org> asking to subscribe.)

As I write this, then, the process of forming a consensus on the issues the Education Section would like to see addressed in this revision of the Essentials is about to begin. The group charged me with completing this process so that a draft document can be presented to the section at the AARC Respiratory Congress in New Orleans. By the time you read this, the Congress will be just around the corner (or you may be there now). If you are interested in this document and would like to provide input, please attend the Education Section business meeting. Alternatively, you may contact me with any questions or input you may have at the contact information listed on the back page of this issue.

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AARC EDUCATION SECTION STRATEGIC PLANNING COMMITTEE GOALS AND OBJECTIVES IN PRIORITIZED ORDER

by Debra J. Lierl, MEd, RRT

Editor's Note: Debbie Lierl is chair of the Strategic Planning Committee of the Education Section. Her committee developed the following goals and objectives for the Education Section for the coming year. Completed objectives are listed in bold face type; forwarded objectives appear in italic type.

Goal 1: To increase collaboration among educators

Objectives —

- 1.1 Develop a library of evaluation forms, student/employer surveys, etc.
- 1.2 Share strategies for utilizing advisory committees
- 1.3 Share strategies for improving graduate performance on credentialing exams
- 1.4 Develop an item bank of test questions
- 1.5 Share program designs and articulation models
- 1.6 Share Problem Based Learning Modules
- 1.7 Education Bulletin 1996: Develop a network of education consultants**
- 1.8 1997: Establish Bulletin Board on the Internet to allow interaction and communication**
- 1.9 Establish a visiting faculty program

Goal 2: To facilitate curriculum development

Objectives —

- 2.1 *Karen Milikowski: Develop core curriculum*
- 2.2 *Education Committee 97: Develop multi-skilled/multi-discipline curriculum for allied health*
- 2.3 Education Committee 97: Develop alternate site (non-acute care) curriculum
- 2.4 Education Committee 97: Continue presentations on the Farwest Lab proceedings
- 2.5 Education Committee 97: Increase community education about cardiopulmonary disorders
- 2.6 *Education Committee 97: Develop a curriculum for polysomnography*
- 2.7 *Education Committee 97: Develop a curriculum for geriatrics/gerontology*

Goal 3: To promote research related to respiratory care education

Objectives —

- 3.1 Provide presentations/workshops on research methodology
- 3.2 Provide workshops on reporting research findings
- 3.3 Provide information on grants and funding

Goal 4: To increase the level of activity within the Education Section

Objectives —

- 4.1 *Wayne Lawson: Increase Education Section membership*
- 4.2 State affiliates: Create regional forums for educators
- 4.3 State Affiliates: Conduct statewide and regional workshops for educators
- 4.4 Program Committee: Increase the number of lectures/workshops at the National Meeting
- 4.2 ARCF: Develop a scholarship fund

Goal 5: To increase the educational expertise of education section members

Objectives —

- 5.1 Program Committee: Provide teaching skill workshops
- 5.2 Rich Walker: Establish mentoring system for program directors and DCEs
- 5.3 97 Summer Forum: Provide workshops on developing and integrating computer-assisted instruction**
- 5.4 Promote a specialty exam for respiratory care educators
- 5.5 97 Summer Forum: Provide workshops on the use of multimedia technology in instruction**
- 5.6 96 & 97 Forums: Provide workshops on integrating critical thinking into the curriculum**
- 5.7 Provide workshops on testing, evaluation, and grading
- 5.8 Provide sessions on textbook selection

Goal 6: To increase collaboration with other communities of interest

Objectives —

- 6.1 Provide opportunity for interaction with managers and employers
- 6.2 Facilitate communication with state licensure boards
- 6.3 Education Committee: Work with the Ad Hoc Committee for Educational Advancement to promote the findings of the Education Consensus Conference
- 6.4 Improve communication with the Board of Directors and House of Delegates

Goal 7: To facilitate the accreditation process for respiratory care education programs

Objectives —

- 7.1 Work toward a single, unified accreditation agency**
- 7.2 Improve cooperation between existing accrediting agencies**
- 7.3 Participate in the establishment of accreditation standards
- 7.4 Promote two-year minimum entry level**

At the Education Section business meeting in Phoenix members requested that our section chair, Mark Diana, communicate to CoARC the section's desire to be an active participant in developing the new essentials. Additionally, section members will use the listserv and/or home page as the vehicle to develop these suggestions.

INFORMATION-PROCESSING LEARNING THEORY, PART II: INSTRUCTIONAL AND LEARNING STRATEGIES TO SUPPORT INFORMATION PROCESSING

by Arthur Jones, EdD, RRT

Arthur Jones is a faculty member of the respiratory therapy program at the University of Texas Health Science Center at San Antonio.

Editor's Note: This is part two of a two part article on information-processing learning theory. Part One appeared in the Summer issue of the Bulletin.

Part One of this series described and explained the structures and processes involved in memory and learning. The primary memory structure identified is the schema (schemata = plural), which serves as long or short term memory store, depending on its state of activation. It is long term store when dormant, short term store (working memory) when active. The primary processes explained were attention, encoding, and retrieval.

This second and final part intends to identify teaching and learning strategies that support information processing, thereby increasing learning achievement. The learning process originates with sensory perception. Therefore, perception is an important consideration for instructional development. However, for the sake of brevity, the current discussion skips over perception to address attention, encoding, and retrieval.

To learn from an instructional message, students must first select information, then encode it. As evidence that this learning has taken place, the learner takes a test that requires retrieval of the encoded information. Although the cycle just described appears simplistic, complex cognitive processes occur at each stage of the cycle. When a learner fails an exam, it is impossible to know whether the failure involved selection, encoding, or retrieval. In other words, was the information never acquired, or was it acquired in a manner that made it hard to remember in the required context (the examination environment)? Since failure at any stage in the cycle decreases achievement, learning and instructional strategies should support attention (selection), encoding, and retrieval.

Strategies to support attention

Recall that, following perception, the next step in processing involves attention, which has been defined as active selection of information. Furthermore, information is selected with some sense of its intended utilization. Learners' attention must first be gained, then directed.¹ Gaining attention simply means getting the learners to look at, and listen to, an instructional message. After attention is gained, it must be directed to selection of specific information.

Gaining the attention of children may require loud noises or bright colors, but with adult learners, gaining attention should pose no challenge. With adults, we generally depend on courtesy to gain attention (sometimes in error). An in-

structor standing ready at the front of the classroom at the appointed time should serve to gain the attention of a class. However, it is quite normal, even for adults, to lose concentration after a certain time interval. This invokes one of the cardinal rules of instruction: "The mind will only absorb what the seat can take." Even the military recognizes this, and conducts fifty-minute classes.

After gaining the learners' attention, we can use other strategies to direct their attention so they select to-be-learned information from the presentation. Establishing the relevance of information helps to prepare learners to select information. For instance, an instructor may point out how a learner will eventually use the information in practice, as well as how incompetence in the material could injure or kill a patient. These would establish both importance and relevance, as well as intended usage for the information.

Strategies to support attention include —

- Informing learners of the goals of the instruction¹
- Establishing relevance of the instruction¹
- Stimulating recall of prior knowledge¹
- Embedding content-relevant questions throughout the presentation¹
- Embedding headings in instructional visual sequences²
- Pausing at specific intervals during presentation of visual displays³
- Cueing visual aids

Informing the learner of the instructional goals and stimulating recall of prior knowledge are intended to activate the appropriate schema in the learner's memory. With this accomplished, the learner is in a state of readiness to select incoming information for incorporation into the schema.

Instructional objectives are classified as "advanced organizers," which are materials presented at the beginning of a lesson and intended to guide learning. Another type of advanced organizer is study questions. These can encourage both selection and active processing of lesson information.

Embedded strategies are intended to gain and maintain attention during the course of instruction. Embedded questions may be oral questions asked during the course of a lecture, or questions inserted in an audiovisual presentation. Embedded headings are textual displays that serve as visual "signposts" to attract attention to information to follow. Pauses during presentation of visual aids serve to focus learners' attention on the visual display and permit time for active processing of information contained therein.

Various strategies, called "cueing," serve to direct attention to audiovisual media. For example, an instructor may point to key elements in a display. Also, colors can be used to differentiate between elements, thereby directing attention as well. A common error among instructors is to present visual displays that are so overcrowded that learners don't know where to start their selection. More often than not, this type of display actually inhibits learning by misdirecting attention. Another error among instructors is to draw or write visuals on chalk or dry erase boards during the course of a presentation. For various reasons, this is poor teaching practice.

Strategies to support encoding

After information has been selected, it requires encoding. The reader should recall some of the interrelated concepts from Part One of this article, such as: semantic and episodic memory, schemata, levels of processing, and retrieval. Remember that there is no point in encoding information if it can't be retrieved. This is like hiding a valuable so well that even you cannot find it. Good instruction aims to support encoding in a format that facilitates its retrieval. This relates to the concept of "encoding specificity," which implies that instructional conditions should prepare learners for re-activation of the to-be-learned information during evaluation of learning (testing).

Encoding specificity — So what??

Information is more likely to be retrieved under circumstances that are similar to those that existed when it was encoded. So —

- Varying the encoding conditions and cues will increase likelihood for retrieval under varying circumstances.
- Restricted learning conditions foster restricted retrieval conditions.

Relating this to schema theory, the learner activates a schema for the encoding process. This schema formats and locates the information specific to cues that are present during encoding. Mismatch between conditions of encoding and the conditions under which the information is to be applied will impair its re-activation.

An important point to make regarding encoding specificity is that we can relax the conditions necessary for information retrieval by varying the conditions of encoding. For instance, presenting different approaches to concepts and principles can encourage learners to think about them in different ways, thereby reducing their specificity. In essence this amounts to "de-contextualizing" information. We return to this concept under the heading of "retrieval."

Another issue is that of episodic, versus semantic, memories. As the reader may recall, episodic memories relate to events and lack meaning; semantic memory is meaningful and is the memory of thought and comprehension. Incoming information without precedent, related information cannot encode as semantic memory. So, sometimes all we can do is support episodic encoding until schemata have been developed to support semantics.

Strong stimuli, like sounds, visual displays, and emotions support episodic encoding. We can also support it by linking information to events, like clinical war stories. For instance, an instructor who is trying to make an important point may describe how a clinical error injured a patient. This can invoke memories in students which may cause "alarms" to ring when the information is again encountered. Humorous stories may serve the same purpose. In these instances, instructors share their own episodic memories, including the emotions, with students.

Strategies called "mnemonics" can support episodic encoding. For example, students may learn a mnemonic for

the names of the cranial nerves, "on old Olympus, towering tops, a Finn and German viewed some hops." This rhyme helps us remember those nerves. The next trick is to remember what the letters stand for. Finally, why would they "view" hops when it makes more sense to brew them? Regardless, these memory aids support encoding information in a very retrievable packet.

Mental imagery is another type of mnemonic that can be used in a number of ways to support encoding and retrieval. One example of this is the "Method of Loci," which was used by the ancient Greeks. This involves a person walking along a path or corridor and associating specific images with information intended for memorization. That is, linkages are generated between images and information. To recall the information, one imagines him/herself along that path. Each imaginal cue along the path stimulates recall of its associated information.

General strategies to support encoding include —

- Stimulating recall of prior knowledge
- Strong sensory or emotional stimulus — encourage episodic encoding
- Contextual cues — encourage episodic encoding, retrieval
- Mnemonics
- Citing examples, non-examples
- Simple rehearsal — repetition, drill, & practice
- Elaboration — thinking about things; making connections with other information in memory
- Organization — establishing connections with similar information
- Comprehension monitoring (metacognition)
- Metacognition

Rehearsal is another strategy that supports episodic encoding. This is repetition, or drill and practice, of the facts. For instance, when a learner first memorizes all of the initial medical terms, they make no sense, but they learn them anyway. Later, a learner uses the same terms all the time, as part of reasoning, or semantic memory. Most of us consider memorization of facts to be boring. It is, but it seems to be necessary to memorize certain types of material at early stages of training.

Elaborative processing, on the other hand, prepares the student for more complex cognitive tasks, such as application of concepts and principles. Elaboration is the addition of information by the learner to incoming information. It neither negates nor changes the information; rather, it builds more connections between to-be-learned information resident within memory. From Part One, the reader should recall the concept, "levels of processing." Accordingly, elaboration represents active information processing, which theoretically leads to "deeper" processing and comprehension.

Recall that units of information are nodes, which are interconnected by neural networks. Networks that contain related information are schemata. Theoretically, proliferation of connections between nodes enhances activation of information because there are more pathways between nodes to access and activate information. To cite an example, if a greater number of concepts are connected to the concept

“valve,” then there are more pathways in memory by which “valve” can be reached.

Elaboration strategies involve either verbal or visual forms of information. One way to stimulate elaboration is to ask thought-provoking questions. That is, stimulate the learner to think about the subject at hand. Verbal elaboration can take a number of forms. Among these are summarizing, paraphrasing, creating analogies, and questioning. Participative classroom discussion is a verbal elaborative strategy, since it requires learners to add some of their own information to the lesson material during the course of a discussion.

Visual aids are used extensively in education, mostly under the assumption that “a picture is worth a thousand words.” While there may be some truth to this adage, the pictures may be more effective if elaboration strategies, like instructions to form and manipulate mental images, were employed to support the intended learning. A visual elaboration strategy may be something as simple as instructing students to think about a visual aid and try to imagine how changes in specific areas would impact others.

Another strategy to support semantic encoding is presentation of examples and non-examples. A non-example is a case where the definition of a concept does not hold true. Consider the concept, “sphere.” Examples of spheres are “baseball” and “orange.” On the other hand, non-examples of sphere include everything that is not a sphere, like “shovel” and “pencil.” Citing non-examples is an effective instructional strategy, especially when the instruction targets discriminations between concepts that appear similar. An objective for this type of instruction frequently uses the verbs, “contrast,” or “compare.”

Organization helps the encoding-retrieval interaction by selectively locating information in schemata. Theoretically, organization improves connections between units of information, resulting in reduced demands on working memory.⁵ That is, if information is more “tightly” arranged, the search process for the information may be shortened. This is analogous to defragmenting the hard drive of a computer, a process that relocates information on the drive to create a more compact organization.

Outlining, cognitive mapping, and note taking are examples of organizational learning strategies. Importantly, organizational strategies can, and should be, taught to students. Organizational instructional strategies include providing study notes to students. Ideally, instructor-provided notes are formatted to optimize their effectiveness in relating encoding to retrieval. Hierarchical outlines are inappropriate for some types of information and cognitive tasks. Other study-note formats, like matrices and cognitive maps, should be provided when the information does not lend itself to hierarchical organization. As instructors, we can figure this out when we encounter difficulty in creating outlines of lesson information.

Comprehension monitoring strategies utilize metacognition, which is knowledge about one’s own cognitive processes. To cite an example of comprehension monitoring, a student who is learning about the heart can intentionally search through memory to activate information about the heart, generate questions about the heart, and perform self-testing. For instance, “Do I know about . . .?”

Knowing about what is known can be achieved by various types of self-testing. This is a strategy that can be supported by instructing students to do self-testing. Having a learner reproduce what is in memory about the subject matter in one form or another can produce metacognition; that is, if the learner knows he/she can or cannot reproduce it, he/she will become more aware of his/her state of knowledge regarding the subject matter. Awareness of what one knows and does not know about a subject promotes the learner’s access to the knowledge. Furthermore, awareness of knowledge is increased by having learners verbalize or write about the subject.

Strategies to support retrieval

- Images, mental models
- Mnemonics
- Review notes
- Match context of encoding
- Metacognition

Several strategies can support information retrieval. Examples include imagery and verbal devices, such as rhyming. Importantly, strategies that support encoding information also are strategies to support retrieval. As explained in a previous section, accessing information to activate it is enhanced when the cues for activation are similar to those present during encoding.

Review notes may serve to assist retrieval. Therefore, these should be constructed to support retrieval in a manner that reflects the expected performances by learners. For some kinds of knowledge, a format, like a matrix, may be better than an outline. While an outline shows hierarchical relationships, a matrix encourages visualization of interrelationships between ideas. A matrix presents information concisely, and the organization eases visualization of interrelationships between concepts. Matrix notes may be particularly compatible with subject matter, like physiology, that involves dynamic interrelations between concepts. They also may be compatible with instructional platforms, like multimedia, because of the variety of pathways learners can follow through the instruction.

Metacognition probably supports retrieval by facilitating the search for information. That is, it probably represents a control process. Metacognition may lead to a more skilled search through memory because it may include expertise about how to find and activate desired information. Reviewing for tests relates to retrieval as classroom rehearsal and elaboration relate to encoding.

Summary

Instructional strategies that address information processes include those that support attention, such as informing learners of instructional goals, stimulating recall of prior knowledge, embedding content-relevant questions throughout the presentation, embedding headings in visual aids, and pausing at specific intervals during presentation of visual displays. Strategies that support encoding include simple rehearsal, elaborative rehearsal, contextual cues, mnemonics, organization, and metacognition. Finally, re-

trieval of information is tied to its encoding. We can support retrieval with images and mental models, mnemonic devices, review notes, and by matching the context of encoding and exercising comprehension monitoring strategies, which include metacognition.

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Editor's Note: The following two articles are the opinions of the authors and include their thoughts regarding the direction accreditation should take. They are being published to stimulate discussion among educators about the issue. Respiratory care educators are encouraged to send their viewpoints to the Committee on Accreditation for Respiratory Care.

NEW ESSENTIALS OFFER THE OPPORTUNITY TO ADVANCE THE PROFESSION

by David C. Shelledy, PhD, RRT, Wayne Lawson, MS, RRT, and Arthur Jones, EdD, RRT

David Shelledy is chair, and Wayne Lawson and Arthur Jones are faculty member in the department of respiratory care at the University of Texas Health Science Center at San Antonio.

On January 1, 1998, the Committee on Accreditation for Respiratory Care (CoARC) will succeed the Joint Review Committee for Respiratory Therapy Education (JRCRTE) as the committee under CAAHEP responsible for the accreditation of respiratory care educational programs. One of the first tasks of the new committee will be the development of proposed new essentials for accreditation. A key element of these proposed essentials will be the establishment of a minimum of an associate degree in respiratory care at the entry level. In a joint news release, the AARC, JRCRTE, and NBRC stated that they “support the minimum educational requirement for entry into the practice of respiratory care to become the completion of an accredited respiratory care

program granting an associate degree or higher.” The establishment of an associate degree as minimum entry into the profession represents an extraordinarily important goal for our profession, one that should continue to be strongly supported by the educational community.

Once the issue of associate degree as minimum entry to practice is accepted, another important decision must be addressed by those developing the proposed new essentials. Currently, we have a two-level accreditation system. These two levels are defined, in part, by the NBRC entry level examination and the NBRC registry examinations for advanced respiratory care practitioners. Upon initial consideration, it may appear that establishing a minimum of an associate degree for entry into the profession will allow us to simply eliminate the lower level. Others have recommended that we eliminate the advanced practitioner level of accreditation and only accredit at the entry level. It has also been suggested that the advanced practitioner RRT could then be replaced by a critical care specialist credential.

We believe a move to one level of accreditation is problematic and could limit the profession's advancement. Establishment of entry level accreditation as the only level of accreditation granted could result in a lowering of standards — a move which we believe would harm the profession. What follows is our rationale for continuing to offer an advanced level of accreditation for programs choosing to offer that level of training and education —

Accept, for the moment, that the NBRC's methodology for job analysis is sound. Using the job analysis system, the NBRC has clearly identified two practice levels and several specialties. If you accept the job analysis as a basis for practice, entry level can be defined by the competencies needed on entry into the job. These competencies are currently defined by the entry level respiratory care practitioner examination matrix. Graduates of all respiratory care programs must take the entry level examination (based on this matrix), and it is this examination that is used as the basis for entry into practice and licensure in many states.

Having said that, there is a clearly defined level of practice beyond entry level, and that level of practice is described by the advanced respiratory care practitioner (RRT) job analysis. We would argue that this advanced practitioner is an advanced generalist, with an emphasis on skills relating to assessment, patient care management, critical care, evaluation of basic care modalities, cardiopulmonary diagnostics, perinatal-pediatrics, and special procedures (see the NBRC job analysis for entry and advanced levels). We believe the RRT practitioner has different and more advanced competencies than those defined by the entry level minimum. The RRT is a well established credential, enjoying immediate recognition among employers. While the RRT can function as a critical care specialist, many RRTs practice across multiple health care settings, and often serve as consultants and clinical specialists in other areas. The NBRC is currently in the process of performing a new job analysis for the profession which continues to identify two levels of practice. It seems apparent that we will have a well-defined advanced practitioner role and its associated credentialing system for the foreseeable future.

Employers tend to be very specific about what they want, and in many cases it is the advanced practice RRT generalist.

The market today is not asking for more specialists. While the establishment of an critical care specialty credential is a laudable goal, it should not replace the RRT. Our professional survival may rest on our ability to consult on and direct care at a high level of expertise in any setting. We believe that maintaining the RRT credential is essential to our future, and that this credential represents skills that go beyond entry level practice. We also believe this will require continuing to offer two levels of programmatic accreditation.

JRCRTE and the CoARC transition committee have asked for input as they develop the new essentials. This represents an excellent opportunity for the educational community to participate in the advancement of the profession. Our recommendations, at this point, would be —

1. Minimum entry level to the profession will be at the associate degree in respiratory care. The competencies, and thus the curriculum, should be defined, in part, by the entry level job analysis. The curriculum should also include elements identified during the education consensus conference process, along with an appropriate general education component. Attainment of discipline specific competencies should be demonstrated by successful completion of an entry level examination. The credential awarded reflects individuals who have passed the examination and hold a minimum of an associate degree in respiratory care (i.e., entry level respiratory care practitioners/entry level respiratory therapists).
2. Advanced respiratory care practitioner education will be at the associate, post-associate, baccalaureate, and graduate levels. The competencies, and to some extent, the curriculum, for programs training at these levels would include those outlined by the advanced practitioner job analysis and demonstrated by an advanced practitioner examination testing for these competencies. Currently, this is the RRT job analysis and exam matrix, and the RRT credential is awarded to those who pass the advanced practitioner exams. We believe this should continue.
3. CoARC should be asked to accredit at two levels: entry level respiratory care practitioner (entry level respiratory therapist) and advanced respiratory care practitioner (registered respiratory therapist or RRT). Associate and baccalaureate degree programs could elect to offer one or both levels of training and education.
4. Expanded practice and clinical specialization would be offered at the post-associate certificate, baccalaureate, and graduate levels. Competencies would be verified in the same way as the current system documents competencies in pulmonary function technology and perinatal-pediatrics. New areas, such as patient assessment, and the associated competency exams would be developed as needed.

It is difficult to include advanced level competencies in associate degree programs while at the same time including an appropriate amount of general education course work. However, associate degree programs preferring to hold advanced level accreditation should be allowed to do so. Currently, associate degree programs training at the advanced level often find that they need to include a large number of program prerequisite courses or extend the program length

to 24 full months for completion — the equivalent of three academic years! Associate degree programs preferring to limit degree requirements to a more reasonable 60-68 semester hours could do so by declaring the program to be entry level only. Ideally, advanced respiratory care practitioner training and education would reside with BS and graduate programs, but pragmatically and logistically, we realize this step would be premature at this stage of our profession's development. We should remember, however, that many of our sister professions (PT, OT, PA) have moved to the BS degree for entry level and in some cases have established minimum entry at the masters degree level.

As an alternative to two levels of accreditation (once the associate degree becomes the minimum for entry into practice), some have suggested that we eliminate the current entry level exam and replace it with one similar to the current registry and include both entry level and advanced competencies. We would suggest that this option is simply not realistic. As noted earlier, the NBRC is currently in the process of repeating the job analysis for the entry level examination and the written registry. Two levels of practice have again been identified, and the new entry level and written registry exams will come on-line in 1999. To restate: it is likely that we will continue to have a two level credentialing system for the foreseeable future. Failure to accept this fact, and the adoption of a single level of accreditation, could actually lead to a lowering of standards.

We believe that the profession should preserve the advanced practitioner level for accreditation purposes. If we do not accredit at the advanced practitioner level, we run the risk of de-legitimizing advanced practitioner formal education programs. That could be a big mistake for the profession. We also believe the new essentials should be developed in such a way as to enhance baccalaureate degree education in respiratory care and promote the development of graduate programs. While there will continue to be a vital role for graduates of associate degree programs in our profession, development of a strong system of BS degree and graduate programs is essential if we are to advance the profession in terms of expanded practice, clinical specialization, research, and patient care management.

LESSONS LEARNED: CRAFTING NEW ACCREDITATION STANDARDS

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There are relatively few windows of opportunity to influence one's own profession in a direction that is futuristic and empowering. Our window is open for the next 6

months. What lessons have we learned that could guide our standards toward a proactive yet flexible document? The AARC, NBRC and JRCRTE position statement, "Educational Preparation for Entry into Practice as a Respiratory Care Practitioner" (1,2) represents a change of educational entry into practice demonstrated by the associate degree in respiratory care. The new accreditation agency, CoARC, is scheduled to set in motion a requirement that respiratory therapy programs grant an associate degree. The NBRC, too, has formally supported this upgraded educational requirement. The major impetus for these changes is outlined in the position statement as follows:

1) Growth of managed care, cost containment, and changes in the health care environment.

2) A broadened scope of practice and potentially new expanded roles and multiple skills.

3) Communication, problem-solving and critical thinking, English composition, and computer literacy.

4) Collaboration with other health care practitioners and service as a member of a multidisciplinary team.

At the 1997 Summer Forum James Cairo, PhD, RRT, Chair of the Transition Committee on Accreditation announced a call for input from the educational community for new accreditation standards. Within this context, the authors pose the following questions and provide plausible scenarios in order to suggest what standards would be best for accreditation of our programs.

1. What scholarly evidence exists that should be integrated into CoARC standards?

Our primary educational evidence for educational preparation is grounded in the proceedings of the education consensus conferences (3,4) and the Delphi study on educational needs. (5) Here we witness requirement for the associate degree, expanded curriculum and skills, and general education offerings resulting in an academically prepared and job-ready graduate. Evidence regarding accreditation from these documents asserted that educational trends will affect "changes in accreditation requirements, program outcome evaluation, and expanded outcome measures." (3, p. 69) This is an important point in that flexible and evolving accreditation standards should accommodate curricular standards. As practice changes so must curriculum content, and as a result standards must not dictate nor lock in required content. This is a major consideration related to degrees. All degrees have differing communication, math and humanities requirements. Accreditation standards must not impede institutional options. Curriculum does change and adapt while standards are rarely updated. Moreover, in terms of a degree, consensus was determined in that . . . "the educational degree [would provide] entry into practice." (3, p. 74) This could be at the associate or baccalaureate level. The associate degree entry position statement pointed out the necessity of academic skills linked with expanded practitioner roles as necessary ingredients to maintain competency while meeting employer expectations. Along these same lines, "All groups asserted that a single entry into practice was essential." (3, p. 74) A single entry concept is key to accreditation standards and multi-skilling—expanded practice above and beyond entry can occur through multiple educational avenues. Multiple ac-

creditation levels are undesirable and not appropriate as our profession moves into an era of "degree requirement". Entry into practice was designated at the therapist level during the consensus process.

In Consensus Conference Two, discussion centered around initially credentialing therapists in concert with the associate degree therapist identified. Some suggested that "a new entry-level therapist exam will need to be developed". (4, p. 34) It is imperative that our new foundation be representative of a clear identity. This identity is the respiratory therapist. Standards must speak clearly to one level of preparation. Expanded/specialty practice above this is optional and not subject to accreditation.

2. What national policies should be considered as accreditation standards are constructed?

The National Commission on Allied Health has many recommendations concerning education. (6, p. 11) One recommendation noted:

"Professional associations, credentialing agencies, consumer groups, and government should undertake efforts to reduce existing barriers to clinically effective and cost-efficient scopes of practice for those whose scope of training currently exceeds their scope of practice and for those who add new or multiple competencies in the future.

"Furthermore, it is recommended that accreditation should evaluate what is taught in terms of effective and cost-efficient practice. Curricula should reflect practice across work settings. Accreditation and licensure are seen as barriers to institutional responsiveness and to a rapidly evolving health care system. Accreditation should not present barriers to institutions. Rather they should work hand in hand with licensure or certification to promote the same tone. This means that uncomplicated accreditation framework and standards should reflect entry-level therapist at a minimum of the associate degree. This also means, there should not be any other accreditation standards for clinical specialty or advanced degrees. Accreditation beyond this would unnecessarily restrict programs in a time when standards and licensure/credentialing are to be downsized in order to promote institutional responsiveness and collaboration among the health professions in order to evolve with health care changes. Associate and baccalaureate degrees would hold the same accreditation recognition. Additionally, the Commission's recommended action is that accreditation consolidate (levels, boards, standards) when possible and streamline processes. Accreditation's new role would be to assess curricular relevance, responsiveness, and competence. Standards for accreditation must flex and flow and not be a major obstacle."

3. What lessons have we learned that could help establish appropriate standards?

It seems we have not always thoughtfully crafted our profession with "scientific, sound methodology". When we faced personnel shortages we built home study programs and technician certification boards. We've added more tests, more requirements, more essentials, more curricula and programs. Requiring an associate degree minimum is the first sound action on behalf of our profession we've accomplished in years. It is important to carefully build from

this. Licensure and credentialing must compliment our structure—not drive it. This means that in our new world licensure and certification agencies would recognize the associate degree therapist and provide a credential appropriately. In our new world we would not have two levels of therapist nor two levels of technician nor basic this and advanced that. Multiple levels confuse our identity. We should not have two-or-three tiered accreditation mechanisms just because of specialty or expanded practice. CoARC will accredit therapist programs and credentialing and licensure will evolve to meet this construct. This may mean we would have a critical care, pediatric or home care expanded practice credential. In most other health professions there are multiple credentials but not multiple levels of accreditation. To craft standards based on credentials is unsound and a barrier to providing a curriculum which can respond to the changing health care workplace.

In conclusion, we propose the following:

1. The CoARC should develop standards to accredit respiratory therapist programs. There should not be separate standards for how graduates perform when they enter the profession versus how they perform after 6 to 12 months of experience (i.e., entry level versus advanced practice). There should be one set of standards for a therapist program.
2. The standards should specify that a therapist program must, at a minimum, award an associate degree. However, therapist programs could also be at the baccalaureate (or even graduate) level.
3. Specialty or expanded practice education is in addition to therapist education and can be achieved by a number of avenues (e.g., college courses or degrees, internships, work experience with independent study). Because of the flexible nature of this type of education, it should not be subject to CoARC accreditation.

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PERSPECTIVES ON RESPIRATORY CARE ARTICULATION

by Oliver J. Drumheller, EdD, RRT

Oliver Drumheller is a faculty member of the respiratory therapy program at the University of Texas Health Science Center at San Antonio.

Editor's Note: The improbable will soon become the inevitable. In the next several years, essentially all respiratory therapy educational programs in the U.S. will require an associate degree as the minimal requirement for degree completion. This timely article presents perspectives on program articulation and how it can become one of the models utilized to implement this transition.

As the respiratory care profession moves toward the development of the associate degree as the new entry level, articulation may serve as the optimal framework to connect and grow one year programs into two year programs. Articulation will formally allow educational mobility for advancement into higher level educational programs within respiratory care. (Please note that it is imperative to gain administrative approval prior to initiation of articulation arrangements to protect all entities involved.) For the sake of this discussion, I will offer perspectives on articulation based on successful experiences with the 1 + 1 and 2 + 2 articulation models.

Articulation types and models

Articulation models range from loose (informal) to tight (formal). Loose arrangements are directly between the higher level institution and the student. Tight models are characterized by a formal contract between institutions which protects both the student and the institutions if there are changes in key school personnel. Advanced standing is granted following student application and acceptance at the higher level school, and requires the NBRC credential and completion of an accredited respiratory care program. School graduates who have not taken the NBRC examinations may be accepted as special students, with full admission held until they pass the appropriate NBRC credentialing examination. One exception will need to be addressed when the AS entry is implemented. Current one-year programs located in institutions that are not granting AS degrees will need to seek separate articulation arrangements with AS degree awarding schools for their graduates to be eligible to take the "Certification Examination." Following

completion of this separate arrangement, the graduate would be eligible to re-enter the articulation procedure.

The type of articulation should be based on program and institutional needs, with the method for granting student credit toward the higher degree clearly defined. Granting of block credit based on completion of the NBRC credential is preferred, with the specific courses listed on the student's official record when credit is granted. This credit should be held in "escrow" until just prior to graduation to prevent credit flight.

Collaboration and negotiation aimed at seeking the common ground between all the interested parties (institutions, faculty, professional organizations, state regulatory groups) is important. Resistance to articulation by schools, faculty, and administration can be overcome by addressing problems and concerns openly, being persistent, using available information to build the case for articulation, and having a positive approach. However, barriers within and between institutions may also have to be addressed, especially in states (such as Florida) with separate agencies for vocational-technical, community college, and university governance.

Articulation framework

The framework should be clearly defined and available for use. The program, faculty, support personnel, administration, community leaders, and students must be familiar with the overall articulation framework to maximize its positive impact.

For the school, admission procedures must include —

- defined and published application procedure
- verification of accredited school completion, certificate of completion, and transcripts
- verification of NBRC credential
- mechanism to grant credit for the NBRC credential (Note: this credit should be placed on the transcript just prior to graduation)

For the student, a formalized plan of study must contain —

- institutional requirements for the degree
- state mandated general education requirements for the degree
- list of courses satisfied by advanced standing for articulation
- special requirements, such as competency verification or transition course necessary for the higher level institution
- list of courses necessary for degree completion, including any time limitations for completion

Sales and marketing

The articulated program should be marketed *within* the sponsoring institution for approval. It is helpful to use community support for justification, such as having the advisory committee approve the articulation model and communicate support to the school. Key sales and marketing points for articulation are —

- articulation students are cost effective, as they have

already completed clinicals and can avoid repeating them

- articulation students will attend classes that are already being taught to regular students, with only a marginal cost
 - program enrollments may significantly increase, with improved faculty productivity as a bonus
- The articulation model must also be marketed *outside* the institution to potential students.

Activities should include —

- brochures and advertisements to targeted audiences
- articles and reports about the program
- word of mouth at local, state, and national meetings
- school Internet homepage with program information and contacts

Educational delivery must be marketed as being *student centered* and using adult learning principles. Suggested methods are —

- flexible scheduling so that working personnel will have access to the articulated program
- clustering classes on the same 1-2 days per week each semester
- weekend, evening, and block classes (during summer, 1 week quarterly)
- distance education, e-mail supported with electronic office hours

In closing

Our perspective as educators should include building a preferred educational future for our students. Articulation is the low-cost, effective method for developing the associate degree entry level and stimulating enrollments. Articulated bachelor degree options and graduate education are the next natural educational goals. A quality career ladder based on foresight and collaboration will lead to successful professional expansion.



PROBLEM-BASED LEARNING: AFTER THE FACTS ARE IN

by Bruce Feistner, MSS, RRT

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

All meanings, we know, depend on the key of interpretation.

— George Eliot

Our program has been using a form of problem-based learning for a little over a year now, and we thought we were getting closer to the real thing — that is, until we attended a

day and a half workshop on PBL presented by Dr. John Curry from The Ohio State University. Held at Western Wisconsin Technical College and attended by about 14 people (six of whom were respiratory care educators), it was a real eye-opener that provided us with many innovative methods for integrating PBL into our curriculum.

According to Dr. Curry, PBL is a student-driven technique that emphasizes personal responsibility for learning and puts the burden on students. While each group of students has a facilitator, the students themselves are responsible for actually digging out the facts and clarifying their “learning issues” for the next discussion class. PBL also helps them develop an extensive knowledge base through in-depth research of the case study and its individual facts and connections.

In PBL, one student is given the task of reading the case study aloud, while another writes the facts, questions/ideas/hypotheses, and learning issues on the board. Everything is written down and nothing is erased — each entry is simply crossed off as it is discussed so everyone knows what has been said. The facilitator gives fairly minimal information initially. The discussion group (six or seven students) is then free to explore any area in any order. For example, if they first want to find out what the lab work is, they are free to pursue that area. If they run into a roadblock, the data that is not understood becomes a “learning issue,” which they all will research, either using textbooks, etc., during the session itself or before the next class session. When they reassemble, the learning issue(s) can be discussed first (by all students) and those areas clarified. When everyone understands, discussion/questioning/exploration proceeds.

The facilitator provides the group with information over time rather than all at once, which allows reasoning and critical thinking to occur continually. No feedback is given during the discussion, nor does the facilitator indicate whether a decision or fact is right or wrong. The students are allowed to work through the problem for themselves, sometimes making mistakes and then correcting the situation, a technique that allows them to learn a valuable lesson rather than a spoon-fed one. This is probably the toughest job the facilitator has — just sitting back and letting the students make the decisions, right or wrong.

The facilitator can, however, direct the students around a roadblock or suggest another way to look at the problem. This helps keep the case moving and lowers the frustration levels of the students. If necessary, the facilitator can also use “time outs” from the discussion to refocus the group, give them time to work out confusing or conflicting data, suggest new ways to proceed, etc. Sometimes this little break from the action is all it takes to get the group back to productivity.

During the workshop, a concern was raised about whether or not all “isolated” facts would be covered in this type of class. Dr. Curry responded that even when facts are given in a standard lecture format and every student “hears” them, there is no guarantee that everyone will remember and apply them. With PBL, if students aren’t entirely clear on a fact or issue, it will come up again (repeatedly) during future case discussions. It’s the mechanism of searching and application that anchors the data and helps the student develop a way to both learn and apply the knowledge.

After each day’s session, an evaluation of the class should be held. This gives the group important insights into how the class went and how each of them performed in terms of finding the learning issues and contributing to the discussion; it also allows time to hear any suggestions for the next class. The group size of six to seven is ideal for this type of class. If a student doesn’t offer much during a regular classroom (lecture/listen) situation, this may stimulate him/her to talk and interact. Likewise, if a student monopolizes the discussion, other students may suggest that he or she “back off” a bit and let others talk. Frank interchange of ideas like these make the class a sharing, interactive session, rather than a situation where one person takes over and the rest hang back.

Of course, students must realize that there are certain rules which cannot be violated with this type of learning. One is to always attend class. If a student has to miss a session, he or she must first get the group’s permission. Students should also come to class on time and prepared to discuss. For their part, facilitators must refrain from dividing the topics — especially the learning issues — between the students. All students must be responsible for everything. This way, students come away with a good understanding of the entire set of learning issues, not just the topics they were assigned to research.

Evaluation of PBL can take several forms. These may include content exams, facilitator evaluations of students, peer evaluations, individual process assessments, a comprehensive final exam, and others. When the grade is made up of several components, each student is given several opportunities to excel.

Problem-based learning has several advantages over the standard lecture/listen format —

- It emphasizes learning, not teaching, by requiring students to be active, self-directed learners rather than passive recipients of information.
- It de-emphasizes memorization of isolated facts to pass objective exams.
- Students learn in the context they’ll use clinically.
- Closer working relationships are established between faculty and students.
- It encourages better communication between different levels of faculty and students.

It’s difficult to cover all the nuances of problem-based learning in a few paragraphs. But, hopefully, the information provided here will stimulate other programs to pursue this method in more depth. We’re excited to begin implementation in our program this fall, at least in a limited manner. By next summer, we should have worked out the anticipated “bugs” and achieved a higher level of comfort with it.

As Dr. Curry said, in order to make the change to problem-based learning one must —

- let go (let the students be responsible)
- trust (that the students want to learn)
- accept (that the students have the knowledge to begin learning)
- believe (that students can take part in a challenge)
- enjoy (watch true learning take place)

EVALUATING THE AFFECTIVE DOMAIN

by Pat Munzer, MS, RRT

Pat Munzer is program director of respiratory therapy and chair of the allied health department at Washburn University in Topeka, KS.

Since the inception of Washburn University's respiratory therapy program in 1984, we have used the same form for evaluating the cognitive, psychomotor, and affective do-

main in the clinical setting. What has changed over the years is the emphasis of the scores and how they affect the students' grades.

In 1991, our program instituted a policy that allowed for deficiencies in the different domains to affect the student's grade. The faculty's philosophy is as follows: If a student were employed in the workforce they could be written up, lose pay, or be fired for inappropriate performance and/or behavior. With that in mind we set about developing a policy,

WASHBURN UNIVERSITY RESPIRATORY THERAPY DAILY EVALUATION

Student: _____ Date: _____ Instructor: _____
 Hospital: _____ Rotation: _____ Shift: _____

Refer to scale under chart to rate each of the items listed.

	Score	Comments
1. Performance: Application of respiratory therapy knowledge and skill.		
2. Comprehension: Understands important concepts as stated in the objectives.		
3. Problem solving ability: Ability to identify problems or changes in standard and devise practical solutions or modifications.		
4. Patient relations: Ability to effectively interact with patients in a professional, courteous manner.		
5. Personal relations: Quality of interpersonal relations with hospital personnel and staff.		
6. Responsibility: Quality of being able to perform responsibilities in a competent manner and assumes responsibility for own behavior.		
7. Maturity: Applies with appropriate, professional behavior.		
8. Attitude: Compliance with policies stated.		
9. Appearance: Maintains hygiene and professional dress standards of school.		
10. Attendance: Observes punctuality and clinical scheduling.		

SCALE	DESCRIPTION
NOT APPLICABLE	The student does not perform this duty.
POOR	Seldom performs correctly without constant instruction/supervision.
FAIR	Usually performs correctly, but below standards expected most of the time; occasionally requires frequent instruction/supervision.
GOOD	Performs correctly and meets standards expected most of the time; occasionally requires instruction/supervision.
VERY GOOD	Performs correctly and consistently above standards expected; requires minimal instruction/supervision.
OUTSTANDING	Performs correctly and greatly exceeds standards expected; almost never requires instruction/supervision.

Primary activity this shift: _____
 Additional Comments: _____

with legal input from the University attorney, that would allow us to dock points off the student's final semester grade (salary) and/or dismiss the student from the program (fire him/her) for inappropriate performance and/or behavior.

The areas of the grading policy that allow us to dock points off the final semester grade are —

1. The students are expected to receive a 3 or better in each area evaluated on the daily evaluations. Any time a cumulative score is below a 3, it is grounds for dismissal from the program.

2. The students are required to hand in daily student evaluations. Student will be allowed to miss 3 evaluations per semester without affecting the grade. (See number 3 below.)

3. If a situation arises which faculty or clinical instructors feel is detrimental to the development of a student, a written counseling form will be completed. The first incident may result in a deduction of 2 to 5 points from the final semester clinical grade.

Of all the students who have done clinicals over the past six years under this policy, two were asked to withdraw. One withdrew and the other was withdrawn, by the program director, from the program.

Since 1991 the program has had 83 graduates. Of the 83 graduates, 15 were written up during their clinical rotations for various reasons related to the three domains of the evaluation form. Their performance and/or behavior changed enough that the daily evaluations improved and they completed the program. After they graduated from our program, we found out from our surveys and our contacts with employers that two of those 15 were still having problems in the affective domain, and that one of the two had been dismissed from employment.

clinical directors, classroom instructors, and clinical instructors. Institutional politics, snail-paced curriculum development, "communities of interest," dueling accreditation agencies, associate degree entry into the profession, multi-competent training, etc., are just a few of the many "beyond classroom" issues facing program personnel these days. Just when the faculty is finally able to focus on the actual process of teaching and learning, the added pressure of teaching to specifically pass the NBRC examinations is heaped on top of them. And, as all program directors know, it is essential for program survival to have at least an acceptable pass rate on these examinations.

To the NBRC's credit, its method of developing the credentialing examinations is a model in health care education. The concept is simple. Rather than develop an examination and ask schools to teach to that arbitrary model, the NBRC determines what the profession is doing, and develops its examinations based on that reality. The NBRC sends out a comprehensive survey about every five years and from that survey an examination is developed. In short, the examination reflects the profession, rather than the profession attempting to reflect the examination content. This is a demonstration of good old common sense.

Ideally, this also allows schools to develop an entire curriculum based on current practice in the profession. Students should then be prepared not only for the profession, but for the examinations as well. However, as I mentioned before, we live in a real world with many pressures, and quite often the process of preparing competent practitioners does not result in NBRC examination success. Furthermore, the NBRC has announced its intention of updating the credentialing examinations more often than the current five year target. This places even more pressure on programs.

Why not do what some smiling program directors have already done? Separate the processes. Spend your energy in properly preparing practitioners. When you're done, initiate another process to prepare for the credentialing examinations. This system will also work in preparing students for program exit examinations. (Hopefully, the practitioner preparation process does relate at least minimally to the examination preparation process!)

There are a number of ways to achieve this partnership, and if a program decides to initiate such a system it will ultimately be the program faculty itself which decides specifically how to achieve the goal. There are resources available to assist with such a system, and, as I mentioned earlier, there are some programs currently using them.

The NBRC itself offers self-assessment examinations for each of its credentialing examinations, and there are also firms which offer review materials, instruction, and self-assessment examinations. A number of others offer review books and software packages specifically designed for the NBRC tests.

Program faculty could teach an examination review themselves based on their own material or use material such as that mentioned above. In addition, outside teachers could be brought in to specifically run a review seminar. The fees for the process could be included in the college tuition and fee package. College credit could also be granted for a review. There are any number of ways to achieve the goal.



WHY NOT A PARTNERSHIP?

by John White

John White is affiliated with St. Clare's Hospital in Schenectady, NY, and has been on the RT faculty at Hudson Valley Community College in Troy, NY. He is also solely responsible for the development Clin'Ed and Audio Reviews for RCPs — educational materials for respiratory care students and practitioners.

A basic rule that teachers are taught to follow is "don't teach to pass the examination!" In the ideal world, teaching and, hopefully, learning is much more effective if teacher and students alike have the luxury of exploring principles and issues in an open manner. The goal should be for the students to attain an understanding of whatever material is being covered in a particular lesson or course. If the teacher is reasonably skilled, the students reasonably bright, and the course material reasonably well structured, appropriate learning should occur. When an examination based on the material is given, a perfect Bell curve distribution of grades should result.

HAH! Respiratory therapy educators don't live in an ideal world. There is tremendous pressure on program directors,

A word of caution. When developing or purchasing material to use for an examination review be certain that the material reflects as precisely as possible the current examination content. Keep in mind that it is at least as important to know what not to teach to pass the examinations as it is to know what to teach. (It is not necessary, for example, to know the international color for a cyclopropane tank!)

Lastly, learn to relax. By developing a credentialing examination preparation partnership, you too can smile along with those currently smiling program directors.



RT PROGRAM SNAPSHOTS

by Sharon McGenity, BS, RRT

Sharon McGenity is the program director of respiratory therapy program at Macon State College in Macon, GA.

Editor's Note: Sharon started the RT program at MSC from the ground up about two years ago. This article provides snapshots of "How They Do It" at MSC.

Respiratory therapy laboratory design

In order to maximize space and promote hands on experience, the main laboratory at Macon State College in Macon, GA, was designed with workstations. Each workstation has oxygen, air, and vacuum quick connects and electrical outlets. There are ten stations, three of which have oxygen. The other seven have oxygen quick connects with an air supply, as it is more economical. The main focal point is the examination table, which has five drawers utilized in the following manner: At the foot (we turn around for this!) is a top drawer for intubation equipment. The bottom drawer stores flow meters, pressure and suction manometers, suction tubing, and other similar items. The three side drawers house disposable oxygen equipment, aerosol equipment, and vital signs devices. A resuscitation bag is hung by Velcro at the top end of the table. The tables are spaced to allow room for ventilators and two students to work at a time. The table top can be lifted at one end to simulate trendelenberg. Students can either sit or lay down for practicing therapy. The cost of each table is approximately \$700-800, and it replaces storage cabinets and beds in the laboratory.

Teaching ventilator design and schematics

It is becoming increasingly difficult to teach the internal workings of ventilators, as they are becoming more and more complex. The equipment books' schematics are confusing, both to the students and the instructors. However, we have found a very successful way of teaching our students in this area. In order to simplify instruction and to teach the principle design of ventilators, we have our students build a ventilator on the board using colored pens.

First, we explain how the ventilators are controlled; how

inspiration is triggered, limited, and cycled; and how transducers, switches, and stepper motors work. Then students begin with the outlets needed for electricity, oxygen, and air, and work through the inspiratory side using a cross section of the ventilator. Next, we add the patient circuit with wye and follow it back through the expiratory side of the ventilator. A second, smaller box is added off to the side as the front panel, and as we finish a task, the corresponding item is put on the panel.

Questions asked during the process include: How would you mix the air and oxygen to get a specific FIO_2 ? If the ventilator uses pressure to trigger inspiration, what would you need and where would you put it? What would you need if flow is the trigger? What source would be used to power a nebulizer? Where will we need to put a PEEP valve? If there are alarms for high pressure and low pressure, where would the sensors be and where do they need to send signals? If flow is measured by temperature changes, where would the sensors be? What is needed to signal when air/oxygen pressure falls below 50 psi? How can we add IMV? Where do we need to add the microprocessor, shut-off valves, pressure gauges, pressure relief valves, bacterial filters, humidifiers, heaters, water traps, accumulators, etc.?



SUMMER FORUM POSTER PRESENTATIONS & ABSTRACTS

Editor's Note: The following abstracts and poster presentations were made during the AARC Summer Forum, held last July in Phoenix, AZ.

A RESPIRATORY CARE PRECEPTORSHIP

by Catherine L. Myers, MEd, RRT, CPFT,
and Robin M. Nitkulinec, MEd, RRT, CPFT

Catherine Myers is an educator, and Robin Nitkulinec manager, pulmonary services, at The Western Pennsylvania Hospital in Pittsburgh, PA.

Due to the 1993 Practice Act for the Commonwealth of Pennsylvania, students enrolled in a respiratory care program are no longer able to enhance their clinical skills outside their established academic program. Therefore, an elective Respiratory Care Preceptorship was incorporated into the curriculum at the Indiana University of Pennsylvania/The Western Pennsylvania Hospital School of Respiratory Care to enhance the student's academic growth and development. Students are responsible for meeting eligibility requirements, site negotiation, individual preceptorship design, and submission for approval by the program coordinator. The preceptorship experience enables the student to participate in departmental operations, and policies and procedures, while gaining exposure to additional clinical situations.

As of June 1997, 19 students had collectively completed 50 academic sessions. All students successfully completed their preceptorships, and 14 secured employment by their preceptor site upon graduation. Five students relocated for full-time employment elsewhere. Documentation from written evaluations from preceptees, preceptors, and mentors has shown that the student, as well as the institution, benefits from participation in this academic endeavor. Future applications should include additional preceptor sites in all areas across the continuum of care. Ongoing evaluation and revision will assess program effectiveness and insure academic integrity.



CAN COMPUTER-ASSISTED INSTRUCTION BE USED TO SUPPLEMENT CLINICAL EXPERIENCE FOR ALLIED HEALTH STUDENTS?

by Rusty Taylor, MEd, RRT

Rusty Taylor was clinical director at Washburn University in Topeka, KS, and is now the director of multimedia curriculum development department at Kansas State University.

As educators, we continue to look for new teaching methods that will bridge the gap between the learning styles of our students. As we struggle through hospital restructuring and a decline in many hospitals' patient censuses, we must find new ways to provide instruction. Additionally, we must find effective alternative methods that will help prepare our students in spite of these situations, and effectively refine their critical thinking and problem solving skills. With this work, I intend to determine if it is possible to use multimedia technologies to provide effective simulated clinical experiences and competency testing outside the clinical setting.

The method I have chosen involves implementing various multimedia technologies into our curriculum. These technologies include the following: commercially developed computer-based clinical simulations, custom-designed computer-based training (CBT), and the use of VHS video. Whether we embrace it or not, a tidal wave of technological change is upon us, evolving faster and faster. With it is a growing force for change in the way we teach and learn. The desired results are increased productivity, increased access to patient situations (in spite of the decline in patient censuses), and improved retention. From an educational view point, this project addresses these issues.

We are fortunate to have four new computers in our classroom. Installed on each computer are a variety of computer-based clinical simulations, tutorials, custom-made instructional material, and digitized video. Students are required to use these materials and to evaluate each unit they complete. Additional materials are purchased or developed when a specific need is identified or as resources and time permit. The assessment of this method will be based on the analysis of respiratory therapy students who have completed the National Board for Respiratory Care's (NBRC) Certi-

fied Respiratory Therapy Technician (CRTT) Self-Assessment Exams (SAE). (The CRTT and RRT self-assessment exams are a requirement of our program.)

Data (SAE scores) will be gathered on students who have used computer-assisted instruction and those students who have not. A comparison will be made using previous students that did not have this type of instruction as the control group. Using the analysis of variance (ANOVA), a statistical comparison of the differences would be used to determine the extent to which there is a causal link between the type of instructional method and student success rates.

The results so far are statistically inconclusive (this is the first year of implementation), but the early data appear promising. The initial group of students receiving this method of instruction scored much better on the CRTT self-assessment exam than those who completed the same exam three years ago. Ultimately, it will take several years to gather enough data to validate any findings and to make this research statistically significant.



IMPLEMENTATION OF A CLINICAL PRECEPTOR PROGRAM TO ENHANCE GRADUATE PLACEMENT AND EXPERIENCE

by Thomas Striplin, BS, RRT, RPFT

Thomas Striplin is a member of the faculty at the Allegany College of Maryland Respiratory Care Program.

The Clinical Preceptor Program (CPP) at Allegany College of Maryland was developed to enhance clinical experience and practitioner skills prior to graduation. The CPP further offers health institutions and hospitals a chance to interact, and gives hospitals an opportunity to review prospective employees. The CPP was originally slated at 56 hours of clinical time, and since its inception has been expanded to 120 hours of time. Students select a primary clinical preceptor and site, but may choose multiple sites and preceptors if desired. Scheduling is flexible, allowing students to match their preceptor's schedule, which may include weekends and rotating shifts consisting of eight to twelve hours at a time.

Non-affiliate clinical institutions may be selected by the student if the CPP can implement a temporary contract with that institution. There are a number of built-in control systems to guarantee quality clinical experience while assuring communication and supervision within the system. Employment/hiring tracking data indicates that students who select a preceptor site have a 100% greater chance of being hired by that site than non-preceptor site applicants. The CPP evaluations have further demonstrated increased cooperation, integration, and feedback between affiliate personnel and the respiratory care program. Future revision to the CPP includes expansion of the clinical time to include the entire last semester, and a revised clinical model based on individual outcome assessment learning strategies.

**FREQUENCY OF PERFORMANCE
IN AFFECTIVE EVALUATION OF GRADUATES**

*by Phillip D. Hoberty, EdD, RRT,
and F. Herbert Douce, MS, RRT*

Phillip Hoberty and Herbert Douce are on the faculty at The Ohio State University.

Background: Accreditation standards require evaluation of new graduates in the affective domain. Recently the AARC conducted a national Delphi Study (DS) to identify the characteristics, traits, and attributes of the future respiratory care practitioner. Although the DS identified at least 22 affective attributes that could be helpful in evaluating students in clinical experiences, it did not identify a minimal frequency at which each attribute must be displayed for a student’s performance to be considered satisfactory.

Methods: We designed an instrument that incorporated the 22 attributes and distributed it to 159 attendees of the general sessions of the AARC 1996 Summer Forum in Orlando, FL. Attendees were asked to identify the minimal fre-

quency as “always,” “usually,” “sometimes,” or “rarely” for a satisfactory rating on each item at the time of graduation.

Results: 70 surveys were returned for a 44% return rate. Respondents included 41 educators, 22 managers, three clinicians, and four unidentified. The following table lists the frequency of response for each item. On seven items, a frequency of “always” was required for satisfactory by > 80% of respondents, on 14 items a frequency of “usually” or more was required, and on one item a frequency of “sometimes” or more was required. As a result, the graduate should receive a satisfactory if: always courteous, honest in interactions with patients and staff, dependable/reliable, punctual, responsible for actions, willing to learn, and displaying a professional appearance; sometimes displaying a sense of humor (when appropriate); and usually displaying all other attributes.

Conclusions: Respiratory educators and managers do not expect new graduates to always display all 22 professional attributes. The results of this survey will help the educator or manager appropriately use frequency as a means of rating performance as satisfactory or unsatisfactory.

Percentage responding at each frequency for 22 affective attributes (Ranked by percentage in always)

Attribute	Always	Usually	Sometimes	Rarely
Has professional appearance	91	9		
Responsible for actions	88	12		
Honest in interactions with patients and staff	87	13		
Courteous	84	15	1	
Punctual	82	18		
Dependable/reliable	81	17	1	
Willing to learn	80	19	1	
Sensitive to & respect for the personal needs of others	72	28		
Communicates concisely & appropriately	72	28		
Tolerant	65	33	2	
Respectful of authority	62	38		
Compassionate	62	37	1	
Efficient planning and management of time	60	36	4	
Motivated for continued learning	55	41	4	
Flexible in adapting to clinical assignments	55	40	5	
Tactful	52	45	3	
Has personable demeanor	50	47	3	
Confident in abilities	41	52	7	
Self-directed	40	51	9	
Shows initiative in seeking out new responsibilities	33	58	9	
Controls stress	32	65	3	
Has sense of humor, when appropriate	13	67	20	

**AFFORDABLE INTERVENTION
WITH IMPLEMENTATION OF
THE MULTI-LICENSURE APPROACH**

by Manuel Lee Miller, RN, RCP

Manuel Miller is clinical director at Caretran, Inc., in Bakersfield, CA.

Aging baby boomers who were unconcerned about risk factors of COPD will exhaust the finances of the health care

system if we do not expedite an improved and affordable intervention. In-home pulmonary rehab, performed by multi-licensed respiratory care practitioners, has proven to be the clinical pathway for affordable intervention in today's economic crises. The RCP's secondary license was one of the following: RN, LVN, Psych Tech, Physical Therapy, Phlebotomist, or Nutritionist.

During 1995, 80 COPD patients (38 females and 42 males) underwent Caretran's in-home pulmonary rehab program. Their average age equaled 71 and their average

In-home pulmonary rehabilitation 12-month survey

Pt.'s # & initials	Date	# days rehab	< 12M hosp	> 12M hosp	Sat. 1-10	Survey
2AA	8/2/95	21	1	1	10	Aug-96
3AJ	3/10/95	Maint.	3	2	10	Mar-96
4AM	2/24/95	3	1	1		Exp/hosp
5AP	7/13/95	14	4	2		Exp/hosp
6AL	12/26/95	7	3	0	10	Dec-96
7AR	10/23/95	10	1	0	10	Oct-96
8AD	11/14/95	9	0	0	8	Nov-96
9BF	11/11/95	14	0	0	10	Nov-96
10BL	9/18/95	14	1	0	10	Sep-96
11BC	3/17/95	14	2	1		Exp/hosp
12BJ	6/20/95	6	1	0	10	Jul-96
13BV	3/18/95	5	2	0	10	Mar-96
14BF	8/30/95	14	3	0	9	Aug-96
15BR	12/8/95	Maint.	3	0	10	Dec-96
16CE	11/21/95	14	0	0	10	Nov-96
17CC	12/8/95	14	0	0	10	Dec-96
18CL	1/23/95	7	1	0	9	Jan-96
19CA	1/31/95	14	1	0	10	Mar-96
20CR	11/4/95	14	0	1	10	Nov-96
21CP	10/10/95	7	2	1	10	Oct-96
22CA	4/10/95	7	1	0		Exp/home
23CD	12/18/95	14	1	0	9	Dec-96
24CJ	11/13/95	7	0	0	9	Nov-96
25DG	1/11/95	14	2	0	10	Jan-96
26DL	5/9/95	7	0	0	8	May-96

EDUCATION SECTION BULLETIN

Pt.'s # & initials	Date	# days rehab	< 12M hosp	> 12M hosp	Sat. 1-10	Survey
27FL	10/30/95	3	0	0	10	Oct-96
28FM	4/19/95	Maint.	1	0	10	Apr-96
29FO	3/13/95	7	1	1	10	Mar-96
30FJ	7/31/95	10	0	0	10	Jul-96
31GR	2/16/95	7	1	0	8	Feb-96
32GB	12/13/95	14	1	0	10	Dec-96
33GW	3/13/95	14	1	1		Exp/hosp
34GM	6/5/95	14	1	0	7	May-96
35HL	11/13/95	21	0	0		Exp/home
36HE	8/2/95	6	0	?	?	Aug-96
37HM	3/7/95	7	1	0	9	Mar-96
38HM	3/29/95	14	1	0	8	Mar-96
39HB	2/14/95	5	0	1		Exp/hosp
40JE	8/25/95	14	1	0		Exp/home
41KL	11/13/95	14	1	2	10	Aug-96
42KV	6/26/95	7	1	0	10	Jul-96
43LL	7/10/95	7	0	0	10	Jun-96
44LB	3/8/95	14	1	0	9	Mar-96
45LV	9/27/95	14	1	?	?	Sep-96
46LG	5/20/95	5	0	0	10	May-96
47LE	9/11/95	6	0	1	8	Sep-96
48MD	2/13/95	14	1	0	10	Feb-96
49MG	10/31/95	16	1	0	10	Oct-96
50MD	4/21/95	Maint.	2	0		Exp/home
51MM	8/16/95	7	0	0	9	Aug-96
52MM	4/21/95	14	1	1		Exp/hosp
53MN	8/31/95	6	0	0	10	Aug-96
54MN	12/27/95	14	0	0	10	Dec-96
55OR	6/20/95	5	0	1	10	Jun-96
56PF	12/11/95	14	1	0	10	Dec-96
57PC	7/3/95	7	0	0		Exp/home
58PW	1/9/95	7	1	2	10	Jan-96

EDUCATION SECTION BULLETIN

Pt.'s # & initials	Date	# days rehab	< 12M hosp	> 12M hosp	Sat. 1-10	Survey
59QH	6/13/95	7	1	0		Exp/home
60RR	10/4/95	7	1	0	10	Oct-96
61RR	1/5/95	5	2	0	10	Jan-96
62RP	11/11/95	14	1	0	9	Nov-96
63RC	8/22/95	14	0	0	10	Aug-96
64RA	1/2/95	54	2	1		Exp/hosp
65RE	9/8/95	14	1	1	6	Sep-96
66SB	11/14/95	7	1	0	10	Nov-96
67SW	2/7/95	7	0	0	10	Feb-96
68SR	8/16/95	7	2	0		Exp/home
69SC	3/8/95	7	0	0	10	Mar-96
70SF	1/17/95	Maint.	1	2	10	Jan-96
71SH	10/27/95	7	0	0	10	Oct-96
72SA	6/23/95	14	1	0		Exp/home
73TT	12/26/95	14	2	1	10	Dec-96
74TE	10/31/95	14	1	1		Exp/hosp
75TL	11/2/95	1	0	0		Exp/home
76TT	11/1/95	7	1	0	10	Nov-96
77TJ	10/10/95	7	1	0	10	Oct-96
78WK	6/21/95	14	1	3	9	Jul-96
79WC	12/20/95	14	1	0	9	Dec-96
80WS	10/9/95	7	0	0	10	Oct-96
81WR	11/1/95	12	0	0	9	Nov-96
TOTAL			73	28		

Percentage of reduction in hospitalization 12 months following in-home pulmonary rehabilitation. Includes patient expiration and excluded two patients who relocated out of our geographical service area, as follow-up could not be ascertained.

The actual hospital admissions 12 months prior to rehab = 72

The actual hospital admissions 12 months following rehab = 28

$$\frac{72 - 28}{72} = \frac{44}{72} = 61\%$$

The average duration of rehab/patient, excluding maintenance rehab = $811/75 = 10.8$ days/pt.

Scale of 1 to 10, the average percent of patient satisfaction = $582/61 = 9.54$ or 95.4% satisfaction

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FEV₁ equaled 1.2L. Twelve months prior to rehab, these 80 patients represented 73 hospital admits, with each admit averaging about five hospital days. At \$1,200/day, the total expenditure equaled \$438,000.

Caretran's in-home pulmonary rehab program included nutritional education, general hygiene, aerosol treatments, deep breathing exercises, pulmonary toileting, ambulatory exercise, biofeedback for stress reduction, psychosocial resourcefulness, and quality-of-life measurements. The average duration of each rehab equaled 10.8 days. The cost of rehab to the payor equaled \$100 day/patient. Therefore, the total cost of rehab to the payor equaled \$86,400. With each visit lasting about two hours, the rehab therapist was able to see about three patients a day — very profitable, but was it affordable?

The actual reduction in hospitalization 12 months following in-home pulmonary rehab equaled 61%. This 61% reduction in hospitalization translated to a \$267,180 reduction in expenditures. Since the total cost of rehab equaled only \$86,400, the savings realized amounted to \$351,600. Therefore, given today's economic crises, in-home pulmonary rehabilitation by multi-licensed RCPs is an affordable intervention.



HUMOR

Editor's Note: There are many doctor and patient jokes depicting the lighter side of the medical profession. For a change of pace, we will look at the humorous side of the legal profession. These are samples of jokes from www.apc.net/ia/law.htm

— The crusty old managing partner finally passed away, but his firm kept receiving calls asking to speak with him. "I'm sorry, he's dead," was the standard answer. Finally, the receptionist who fielded the calls began to realize it was always the same voice, so she asked who it was and why he kept calling. The reply: "I used to be one of his junior associates, and I just like to hear you say it."

— A newly established lawyer, wanting to impress the first client coming into his office, picked up the phone and said, "I'm sorry, but I have a tremendous case load and won't be able to look into this for at least a month." He then hung up, turned to the young man in his office, and asked, "What can I do for you, sir?"

"Nothing," replied the young man. "I'm just here to hook up your phone."

— An experienced editor tried to explain the newspaper business to a cub reporter: "You can't sell any papers with a 'Dog Bites Man' story, but 'Client Runs Off With Attorney's Funds' would sell out a special edition."

— The defendant asked for a new lawyer, claiming the public defender wasn't interested in his case. The judge addressed the PD: "What do you have to say to that?" The PD replied,

"Could you repeat that, your honor? I wasn't listening."

— There's a true story about a convicted con-man who was recently found to be impersonating a lawyer in New York City. To which the judge remarked, "I should have suspected he wasn't a lawyer. He was always so punctual and polite."

— Children who never come when called will grow up to be doctors. Children who come before they are called will grow up to be lawyers.



DEVELOPMENT AND EVALUATION OF AN INSTRUMENT FOR THE ASSESSMENT OF STUDENTS' CRITICAL THINKING AND PROBLEM SOLVING ABILITY

by David C. Shelledy, PhD, RRT

David Shelledy is chair of the department of respiratory care at the University of Texas Health Science Center at San Antonio.

Purpose: To develop and evaluate an instrument for use by faculty to assess students' critical thinking and problem solving ability (CTPS). We compared CTPS scores generated by faculty to student performance on the Watson-Glaser Critical Thinking Appraisal (WG) and the information gath-

Beddoes Hall



So that means we can't use it instead of giving Ds and Fs?

ering (IG) and decision making (DM) total scores on a series of NBRC self-assessment clinical simulation examinations.

Method: A 21-item instrument was assembled, reviewed by a panel of experts for content validity, revised, and pilot tested for reliability. The instrument asks the rater the extent to which he/she agrees or disagrees with a series of statements about the student that are thought to be related to critical thinking and problem solving ability. The scores on the items were summed to generate a total CTPS score. Twenty students were evaluated using the CTPS by two faculty members familiar with the students. The faculty were blinded to the students' WG, IG, and DM scores. Interrater reliability coefficients and Chronbach's alpha were calculated as measures of the instrument's reliability. Pearson product-moment correlations were performed to compare CTPS scores and WG, IG, and DM.

Results: The interrater reliability for the CTPS total score was $r = .66$ ($n = 20$, $p = .002$). Cronbach's alpha was .95 and .99 for the two faculty raters, respectively. There were moderate, but significant correlations between CTPS scores and WG ($r = .54$, $p = .02$, $n = 20$), IG ($r = .51$, $p = .03$, $n = 19$), and DM ($r = .47$, $p = .04$, $n = 19$). There were also significant correlations between WG and IG ($r = .49$, $p = .04$) and DM ($r = .74$, $p = .0003$).

Conclusions: Our findings provide evidence supporting the reliability and validity of the CTPS instrument. Faculty ratings of CTPS correlated significantly with critical thinking and problem solving ability as measured using the Watson-Glaser instrument for assessing critical thinking ability, as well as the combined scores for IG and DM, on a series of clinical simulation examinations.



RESPIRATORY CARE EDUCATION ANNUAL: CALL FOR PAPERS

The AARC Education Section will publish volume 7 of the *Respiratory Care Education Annual* (formerly the *Distinguished Papers Monograph*) in the spring of 1998. The annual is a refereed journal committed to providing a forum for research and theory in respiratory care education. It is listed in the *Cumulative Index to Nursing and Allied Health Literature*.

The section invites educators to submit papers for consideration. Preference will be given to papers that emphasize original research, applied research, or evaluation of an educational method. Other topics which may be considered include interpretative reviews of literature, educational case studies, and point-of-view essays. Submissions will be reviewed based on originality, significance and contribution, soundness of scholarship (design, instrumentation, data analysis), generalizability to the education community, and overall quality of the paper.

Deadline for submission is December 1, 1997. Papers should be approximately six to ten pages in length and should follow the guidelines in the *Publication Manual of the American Psychological Association*, 4th Edition. Ab-

stracts should not exceed 120 words. Submissions should be mailed to AARC Education Annual, 11030 Ables Lane, Dallas, TX 75229-4593.



FYI...

Respiratory care on the Web

A "must bookmark" web address for RC educators that links many useful respiratory care related web sites is: www.xmission.com/~gastown/herpmed/respi.htm.

Websites of respiratory care publishers include —

- www.delmar.com
- www.fadavis.com
- www.lippincott.com
- www.mosby.com
- www.wwilkins.com
- www.wbsaunders.com

ARCF Silent Auction offers unparalleled opportunity for RC managers

Attention RCPs! If you're planning to attend the AARC's 43rd International Respiratory Congress this December 6-9 in New Orleans there's a new attraction you won't want to miss. In an effort to raise funds for important projects aimed at improving quality of care for patients and positioning the RCP for success in our changing health care system, the American Respiratory Care Foundation is sponsoring the profession's first-ever Silent Auction.

Thanks to the generous support of the respiratory care industry and others in the respiratory community, the auction will feature items ranging from Las Vegas casino/hotel nights and ski lift passes to Disneyland vacations. Medical equipment to be auctioned off includes items such as capnographs, ventilators, and an oxygen system. You may also want to take advantage of the many New Orleans packages available, including fine dining, cruises, and voodoo tours. Since opening bids on all items have been set at just 25% of estimated retail value, it's a great way to take advantage of a good deal for yourself and/or your department while supporting your profession at the same time.

The auction will run throughout the four-day meeting and all AARC members and officially registered attendees at the meeting are invited to come by Auction Headquarters as often as they like to place and/or raise bids. A preliminary catalog of items published in the October issue of *AARC Times* tells how the bidding process works, and a final catalog with an updated items list will be available onsite. So take a minute to see what's available, then come and join in the fun.

PHS grants available to allied health educational institutions

The Health Resources and Services Administration in the Department of Health and Human Services' Bureau of Health Professions is currently receiving applications for grant funding under Section 767 of the Public Health Service Act for programs that increase the number of individuals trained in the allied health professions. Programs and activities supported by the program include those that —

- Expand enrollments in allied health professions with the greatest shortages or whose services are most needed by the elderly.
- Provide rapid transition training programs in allied health fields to individuals who have baccalaureate degrees in health-related sciences.
- Establish community-based allied health training programs that link academic centers to rural clinical settings.
- Provide career advancement training for practicing allied health professionals.
- Expand or establish clinical training sites for allied health professionals in medically underserved or rural communities in order to increase the number of individuals trained.
- Develop curriculum that will emphasize knowledge and practice in the areas of prevention and health promotion, geriatrics, long-term care, home health and hospice care, and ethics.
- Expand or establish interdisciplinary training programs that promote the effectiveness of allied health practitioners in pediatric assessment and the rehabilitation of the elderly.
- Expand or establish demonstration centers to emphasize innovative models to link allied health clinical practice, education, and research.

Application for the grants is open to accredited schools, universities, or other public or nonprofit private education entities deemed capable of meeting the objectives of the program. Nine applications have been funded so far, with total FY 1996 funding of \$3.4 million. Grant applications are available either by calling 1-888-300-HRSA or electronically at <http://www.hrsa.dhhs.gov/bhpr/grants.html>

JAMA articles focus on managed care's impact on clinical research

A series of articles published in the July 16 issue of *JAMA* confirm what many have suspected: when managed care comes into a market, clinical research suffers.

According to the articles, the decline in clinical research seen in intensely managed care areas of the country warrants concern, and some are suggesting a new tax on managed care companies to ensure that important studies continue to be carried out. Specifically, health officials are proposing a 1% tax over four years on health care premiums, with the money going to clinical research.

The managed care industry is understandably con-

cerned, and has suggested that such a tax be levied on all industries in order to spread the burden of paying for clinical research evenly across the economy. The American Association of Health Plans (AAHP), which represents more than 1,000 MCOs nationwide, called the *JAMA* studies "incomplete and misleading," but nevertheless issued a statement in support of funding for clinical research. Says AAHP President Karen Ignagni, "We would be very pleased to participate in discussions of how health plans can best contribute to establishing priorities for and advancing the nation's clinical research agenda." (Source: Reuters, 7/11/97)

Sputum bowl questions needed

"Wow! Wouldn't that be a great Sputum Bowl question?!" All respiratory care educators say this at least once a week. Now you can do something about it. The AARC Sputum Bowl Committee invites respiratory care educators to submit three questions for 1997 contest consideration by Nov. 17. All participants submitting usable questions will receive a letter verifying membership on the 1997 Council of Sputum Bowl Scholars. The top three authors and their schools will be honored at the National Sputum Bowl Finals in New Orleans. Only educators may enter the contest. One submission of three questions per author will be accepted. Current reference list and question preparation guidelines are available from the Convention department at the following address and through the AARC's web site:

AARC Convention Department
11030 Ables Ln.
Dallas, TX 75229-4593
(972) 243-2272
Fax (972) 484-2720
<http://www.aarc.org>

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