ADMINISTERING THAT "PRACTICAL" EXAM

by Sandra McCleaster RRT

Allied health programs utilize several different approaches to education. They rely on lectures, labs, computer-aided instruction and clinicals. Each of these, by its very definition, requires very different teaching and learning strategies. So too then, they require different methods of evaluation if students are to meet their goals across the three learning domains.

For educators, multiple-choice tests are a no-brainer. They are, hands down, the easiest and most objective way to test a student's theoretic knowledge. But they certainly don't lend themselves to the testing of critical thinking and psychomotor skills. Because RC education is so rooted in procedural tasks and problem solving, the "dreaded" practical exam remains the best route to evaluation of these skills.

But this type of testing can be tricky to execute. I know. I and my program colleagues used it for over 25 years in RC education and I still don't feel I ever became expert at it. But I can share some thoughts and tips based on my years of continuously refining the process.

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No educator should ever jump into practical testing without having given it some serious aforethought. The entire process needs to be planned out well in advance. Since one test could never evaluate all clinical procedures covered in a given course, one tried and true approach is for students to know beforehand exactly what procedures will be in the testing pool and then a short time prior to their test, have each student blindly choose one procedure to be tested. This assumes that you've given students sufficient advance notice of the testing date and that you've made your learning lab available for student practice in all of the procedures.

The tools you used when you taught the specific skill should be the same tools you use to evaluate that skill. This alone supports the argument for using AARC Clinical Practice Guidelines (CPGs) and your program's procedural check-off list as a basis for both teaching and testing. This will ensure that the procedures are both taught and evaluated with consistency and best practice. It also allows the students to know exactly what's expected of them and avoids the snags associated with "This is how they do it at such and such clinical site". If you've used a simulation manikin for your teaching, by all means, utilize it for the testing.

Practical tests can't happen in a vacuum. They will always have to include the "whys and wherefores" which must accompany the implementation of a clinical task. So students need to know that critical thinking and ad-hoc questioning will be part of the testing experience.

It's unlikely that one educator alone could be responsible for this time-consuming approach to testing. All program faculty should participate. This is a great opportunity to bring in outside clinical instructors or preceptors. But here's where inter-rater reliability can present a problem. If possible, try to have each student be judged by two evaluators working together simultaneously. Using two people adds objectivity to the grading. Plus two raters can offset each other's tendencies to over or under grade. In the end, of course, students will still compare notes and grumble about perceived favoritism or bias, but should a student ever contest a grade, having had two testers will leave you better able to defend the grade you've awarded.

Every step of the practical tests should be reviewed and agreed upon by everyone in the testing group. Ground rules should also be discussed in advance. For instance: each student must perform all steps in the procedure and not just verbalize them; or that the frequency of questioning should be applied evenly to all students. Test day will flow a lot more smoothly if you make sure your lab is prepared so that all needed equipment and supplies are immediately accessible.

Each student should be assigned a specific time slot for his or her test, with a predetermined amount of time. (We found that scheduling one student every half hour works well.) That way other students won't be congregating outside the classroom where the practical tests are being administered. Testing should never be given within sight or sound of other students. The test room should be otherwise free of distractions, e.g. cellphones, foot traffic, etc. Evaluator(s) must be extremely attentive and non-committal, but at the same time be supportive and patient. I guarantee you'll have to fight the temptation to nudge students along by asking "leading" questions. As difficult as it may be, don't make faces or allow yourself to become exasperated. Keep your body language silent.

Note specific performance as the student moves along. You would never remember who did or didn't do what if you don't document it as it happens. Students should be allowed to self-correct errors and not lose credit. The fatal error, of course, is the deal breaker. Did the student, either by omission or commission, perform the procedure in a way that could have seriously compromised the patient?

Whether a failing student should be given a second opportunity to pass is up to you. I believe it's acceptable if a student:

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Arterial Blood Gas Accuracy... *Continued from page 34*

metric pressure might force oxygen from the air in the bubble present in the sample into solution and result in a change in partial pressure. We have done systematic trials with samples being sent through pneumatic tubes and found that no changes in partial pressure are evident. In any case the laws of physics described in the above paragraph dictate that any bubble, no matter what the barometric pressure change, will not cause any changes in partial pressure of oxygen or carbon dioxide.

We are often advised that arterial blood gas samples should be analyzed within 20 minutes of drawing and if the analysis is delayed, the metabolism of cellular components will draw down oxygen and add carbon dioxide. The fact is that despite the caveats about leukocyte and erythrocyte metabolism, even after one hour, there are no significant changes in either PO2 or PCO2.

Also, as discussed in my article published in the March/April 2007 issue of Focus, blood gas samples in plastic syringes should never be placed in ice or in ice slush. If an arterial blood sample in a plastic syringe is placed in ice slush for even fifteen minutes, the partial pressure can cause an increase in PO2 of up to 20 mmHg or higher. Any false increase in PO2 can be critical in pulmonary diagnostic tests involving respiratory care patients. An arterial sample kept in a glass syringe in ice slush will not result in an increase in PO2 since glass is not permeable to oxygen. It is unfortunate that sixteen years after word went out that arterial blood gas samples in plastic syringes should not be stored in ice slush before analysis, many pulmonary function technologists and respiratory therapists are still icing arterial blood gas samples.

The drawing of arterial blood gas samples and their analysis, whether we perform the analysis or not, are very important for patient care and are a crucial component of pulmonary function testing.

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1)agrees to added lab practice, 2)performs the initially assigned procedure correctly and 3)randomly chooses a second procedure to test and pass as well.

Practical testing is very subjective and can be a "land mine" even for the most seasoned educators. Not to mention that the one-on-one and timed nature of the test makes it the most stressful testing experience for the students as well. Practical tests are notorious for bringing students to the brink of anxiety-induced panic attacks. For these and other reasons, the practical test should be reserved for end-of course or end-of- program skills assessment.

Never meant to be all-inclusive, practical tests can only be but one part of a multi-faceted package of student evaluation tools. And even though the process will never be perfect, educators have, since time immemorial, depended on practical testing to provide one reliable assessment of a student's ability to give safe and effective patient care.

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