



NCSBN
Leading Regulatory Excellence

The Next Generation NCLEX Uses Computer Adaptive Testing (CAT) Video Transcript

©2022 National Council of State Boards of Nursing, Inc.

More info: <https://www.ncsbn.org/1216.htm>

Presenter

NCSBN Examinations

If you're taking the NCLEX, then you need to know about CAT, or Computer Adaptive Testing. In this video, we'll not only tell you what CAT is, but also help you understand why we use it and what it means for you. The purpose of a test is to measure something like knowledge or a set of skills. Let's think of nursing knowledge, skills, and abilities as traits that can range from really low to really high along a continuum.

At the high end, the student who gets As on everything. And on the other end, the student who lets just say doesn't. With the traditional test, finding out precisely where a candidate falls on that scale requires a lot of questions. That's why CAT is so important in the design of the NCLEX. Computer Adaptive Testing provides the most precise measurement with the least number of questions.

The secret of CAT is adapting the questions you see based on your previous answers. Let's take a look. Here's our scale again. Let's label the scale from -3 to 3 since that's about the range we use on the NCLEX. The test begins with a question of medium difficulty, which we'll put right at 0 on our scale.

The test taker can either get this question right or wrong. Suppose the candidate responds correctly, then the CAT algorithm estimates an ability greater than 0, but places a lot of uncertainty around the estimate because there's only been one question. On the graph, we might show this as a dot around 0.5 to mark our estimate, but a very wide interval to acknowledge the uncertainty of the estimate.

Now the key feature of CAT is what happens next. Instead of getting a second question at random, the computer now selects a question right around the test taker's ability estimate. If the candidate answers correctly again, our estimate of the candidate's ability goes up even more since they just got an even harder question right.

But something else has happened, too. The uncertainty from before has also shrunk a little. Because we have information from two questions, we have more confidence in our estimate than when the candidate had answered only one question. On a CAT exam, our estimate of a test taker's ability can change after each new question. When the test taker correctly responds, their ability estimate goes up and they see a more difficult question.

When the test taker responds incorrectly, their ability estimate goes down and they see an easier question. As the candidate responds to more and more questions, the uncertainty continues to shrink and the ability estimate becomes much more precise. Let's jump ahead now and see how things might look after 85 questions. We can see that the candidate's ability estimate has increased a little, but more importantly, the uncertainty around that estimate is now much less.

In fact, our ability estimate is now so precise that we may have enough information to determine whether this candidate should pass or fail the exam. For the remainder of this video, we will assume the pass/fail cutoff, sometimes known as the passing standard, is at 0.5. We can see from the graph that our candidate's ability estimate even accounting for any uncertainty is clearly above 0.5.

The candidate would therefore pass the exam with what is known as a minimum length pass, 85 questions is the earliest a pass result can be determined. Of course, other results are possible as well. Let's look at a different candidate's graph after 85 questions. Here, again, the ability estimate is very precise and clearly below 0.5, even accounting for any uncertainty. This candidate fails the exam with what's known as a minimum length fail.

Let's now look at a third candidate following 85 questions. Here, the ability estimate is right around 0.5, our pass/fail cutoff for this video, but the uncertainty of the estimate allows for an ability that might be just above or just below the passing standard. In other words, we do not yet know whether this candidate should pass or fail.

The way we do that is to select additional questions for the candidate to answer all the way up to as many as 150 questions. By this time, the uncertainty will shrink to nearly zero and our ability estimate will be precise enough to determine a result. Sometimes the terms maximum length pass and maximum length fail are used.

An ability estimate above the passing standard results in a pass and one below the passing standard results in a fail. Now that we've covered everything, here's a brief quiz. True or false, a friend's exam was the minimum length. This means they failed for sure.

This is false. They could have failed, but they also could have passed. We looked at examples today of the minimum length pass and the minimum length fail. Both situations occur quite frequently on the NCLEX. Therefore, if a test taker receives the minimum

number of questions, either a pass or a fail is possible. True or false, a friend's exam was the maximum length.

This means they passed. This is also false. A maximum length exam occurs when the test taker's ability estimate is very close to the passing standard. If it is just below, the test taker will fail. And if it's just above, the test taker will pass. True or false, the test taker's ability estimate stays the same throughout the entire exam.

This is definitely false. The whole idea of CAT is that your ability estimate changes after every question. True or false, the uncertainty of a test taker's ability estimate shrinks after every question. Yes, this is true, and that's one of the other key features of CAT.

Our estimates get more and more precise after every question. The use of CAT on NCLEX ensures that your exam will take hours, not days, and will provide a very precise result. Ultimately, of course, this result will be based on how well you demonstrate your nursing knowledge, skills, and abilities.

So do your best on each question and know that no matter how long your exam is, the only way to know if you passed or failed is to await your results.