



**Article:** Nader Rifai

*Clinical Chemistry's* Commitment to Education: Stronger than Ever.  
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**Guest:** Dr. Nader Rifai is a Professor of Pathology at Harvard Medical School and Director of Clinical Chemistry at Children's Hospital Boston. He is also the Editor-in-Chief of *Clinical Chemistry*.

Bob Barrett:

This is a podcast form *Clinical Chemistry* sponsored by the Department of Laboratory Medicine at Boston Children's Hospital. I'm Bob Barrett.

*Clinical Chemistry* has demonstrated a strong commitment to supporting and enhancing education in laboratory medicine. The journal has partnered with numerous scientists and educators including many early career individuals to develop a vast portfolio of diverse educational materials focused on a broad range of topics. These resources are available in multiple languages and some have been accessed over one million times.

The journal is now set to launch its most ambitious program yet according to Editor-in-Chief, Dr. Nader Rifai. This program, titled AACCC Learning Lab for Laboratory Medicine on *New England Journal of Medicine's* Knowledge+, is based on the concept of adaptive learning and is a product of the collaboration between AACCC, Area 9 and NEJM Group, the publisher of the *New England Journal of Medicine*. Dr. Rifai describes the educational commitment of the journal and details this newest venture in an editorial appearing in the February 2017 issue of *Clinical Chemistry*. He joins us for this podcast. Of course, Dr. Nader Rifai is Editor-in-Chief of *Clinical Chemistry*. He's a Professor of Pathology at Harvard Medical School, and Director of Clinical Chemistry at Boston Children's Hospital. Dr. Rifai, can you describe this adaptive learning concept?

Dr. Nader Rifai:

Of course. Adaptive learning is really nothing but personalized education. It is like precision medicine for the treatment of certain cancers, except here, it works for all learners. It gives the learners the ability to focus precisely on their individual needs. The way this product works is through an intelligent sequence of questions. The program helps identify knowledge areas in which the learner is deficient, then it quizzes the learner and provides precisely targeted learning resources until the learner becomes proficient in this particular area, then it moves onto identify another area in which the learner is deficient. So it is the combination of the best of computer science, the enormous amounts of collected data, and the smart content that is

carefully crafted by our experts, that really sets this product apart.

Bob Barrett: Well, let's talk about the experts. Who is involved in the creation of this program?

Dr. Nader Rifai: This is the most significant program that the journal *Clinical Chemistry* has launched, and is a unique partnership that brings together three authorities, *New England Journal of Medicine*, which is the most respected scientific brand in the world, AACC which is a leading laboratory medicine organization and the publisher of *Clinical Chemistry*, and finally, Area 9, that has been setting the global agenda for personalized in adaptive learning for the past several years. I believe that this is the most ambitious project in health education, and will have a massive impact on how precisely learning will be delivered to adapt to individual needs of laboratory medicine professionals.

Bob Barrett: And what's the scope of this program?

Dr. Nader Rifai: This program is curriculum-based and will be comprehensive when totally built. We anticipate having over 120 courses that span across all disciplines of laboratory medicine including clinical chemistry, molecular diagnostics, hematology coagulation, transfusion medicine, and microbiology. So when completed, this program will be the de facto backbone of all training programs in laboratory medicine.

Bob Barrett: And who is going to benefit from this program?

Dr. Nader Rifai: We are trying to reach professionals in laboratory medicine at all levels, and I really believe that this program will prove invaluable to those preparing for a certification exam, seeking continuing medical education credit, or desiring competency assessment. In fact, the program makes learning fun.

Bob Barrett: Doctor, who is preparing these courses?

Dr. Nader Rifai: The courses are built by board-certified scientists and physicians from top universities and medical centers in North America. They are based on state of the art content and reflect the most current clinical practice guidelines.

Bob Barrett: What about the validation process? What type of validation process do you implement before releasing a course?

Dr. Nader Rifai: We follow the same rigorous review procedure used by the other Knowledge+ programs. We begin with an internal review by the editors for evidence-based materials as well

as the underlying learning engineering. The next step is an external contents review by experts in the field. The final step before release of a course is a beta testing by individuals, who are representing the intended audience. And once a course is in use, we monitor how the content and the knowledge models perform at scale using intelligent analysis technology that is built into the Knowledge+ platform so we can respond immediately to what we learn.

In addition, the system is built in such a flexible way that it enables current knowledge changes and development in the field to be reflected immediately in the courses.

Bob Barrett: And how do you envision this program being used?

Dr. Nader Rifai: Every month, at least one new course will be released. The product adapts to the lifestyle of the learner. And by using bite-sized questions rather than large chapters and reviews, the learner can fit it in whenever he or she has a free moment and can access from a desktop, iPad, or iPhone. It will truly enable lab medicine professionals to engage in a life-long learning in an effective and an efficient way to benefit them and their employers.

Bob Barrett: Well, how will this program benefit employers?

Dr. Nader Rifai: Well, as an employer, whether you are a hospital or a commercial lab or an IVD company, you have a vested interest in having the most competent employees. So this program provides an ongoing quantitative assessment of your employees' competence.

Bob Barrett: Dr. Nader Rifai is a Professor of Pathology at Harvard Medical School and Director of Clinical Chemistry at Children's Hospital Boston. He is also the Editor-in-Chief of the journal *Clinical Chemistry*. I'm Bob Barrett. Thanks for listening.