

# Journal of Clinical Engineering Interview: Recently Certified Clinical Engineers

**C**ertification in Clinical Engineering is a program of the Healthcare Certification Commission through the US Board of Examiners for Clinical Engineering Certification.<sup>1</sup> This program is sponsored by the Healthcare Technology Foundation.

The stated purpose of clinical engineering certification is to promote healthcare delivery improvement in the United States through the certification and continuing assessment of the competency of professionals who support and advance patient care by applying engineering and management skills to healthcare technology. The certification process includes (1) establishing and measuring the level of knowledge required for certification as a clinical engineer; (2) providing a standard of knowledge appropriate for certification, thereby assisting the employer, public, and members of the health professions in the assessment of the clinical engineer; (3) recognizing formally those individuals who meet the eligibility requirements of the board and pass the examinations for certification; and (4) requiring continued personal and professional growth in the practice of clinical engineering to maintain certification through the commission's renewal process.

Initial clinical engineering certification is a 3-step process: (1) application review by the US Board, (2) written examination, and (3) oral examination.

The application review consists of the assessment of information contained in the application in comparison with defined eligibility requirements, review and verification of college or university transcripts, and review of 3 references that attest to the candidate's clinical engineering experience and abilities.

The written examination consists of 150 multiple-choice questions with

3 hours of allotted time. The oral examination consists of 3 questions with 1 3/4 hours of allotted time. The written examination must be passed before taking the oral examination.

A perennial question about certification is the degree to which it is good for the profession, for healthcare, and for the individual who becomes certified. One approach to addressing that question is to ask those who have chosen to become certified why they did so and what their experience was with the process.

Three such individuals who recently completed the process are Angela (Herrmann) Mulinix (A.H.M.), Leah A. Rafuse (L.A.R.), and Joseph M. Sherry (J.M.S.). They responded to the following questions.

**JCE: First of all, congratulations! How are you each of you employed?**

A.H.M.: *I am a biomedical/clinical engineer for the Department of Veterans Affairs.*

L.A.H.: *I have worked for the Technical Services Program (TSP) at the University of Vermont for the last 10 years, first as a BMET and then as an engineer for the last 5 years.*

J.M.S.: *When I completed the exam process in June, I was a director of operations for ISS Solutions, an ISO in the mid-Atlanta states, but I subsequently left ISS.*

**JCE: A big question for many people is why. Why did you decide to seek certification?**

A.H.M.: *I sought certification because I felt it would give me a new challenge to improve my knowledge and skills in my role as biomedical/clinical engineer for the VA.*

L.A.H.: *Certification lends a certain amount of professionalism and accomplishment to your credentials. It reassures your customers that you've*

*been properly trained. Certification also helps the clinical engineering profession by providing standards of practice.*

J.M.S.: *Continuing education is a very large part of the healthcare culture. Working in healthcare, you need to embrace the culture if you want to be part of the healthcare team.*

**JCE: Did knowing who else was certified, either locally or nationally, make any difference to you?**

A.H.M.: *Yes. Some individuals who had entered the VA program a couple years ahead of me had received their certification, and I noticed the professional recognition they received from their peers.*

L.A.H.: *It did. I am the most junior of the 4 practicing engineers in our organization and was the only one who was not CCE certified.*

J.M.S.: *A good friend was certified. His support was very helpful in both seeking certification and studying for it.*

**JCE: Does your employer recognize certification as an achievement for you and important to the institution or organization?**

A.H.M.: *The VA does encourage and then recognize this certification as an achievement.*

L.A.H.: *TSP is a big proponent for certification, and I was encouraged by our director, Tobey Clark. TSP also helped by purchasing study materials and paying the exam fees.*

J.M.S.: *My prior employer does recognize certification as an achievement; they promote continuing education as an essential job function.*

**JCE: Do your colleagues recognize the CCE as worthy professional recognition and/or a personal achievement?**

A.H.M.: *Yes.*

L.A.H.: Yes, as I said, the other 3 practicing engineers are also certified.

J.M.S.: Yes. I wish more would take the time to get their certification. It does require a personal commitment, and sometimes, life gets in the way of those things you should do.

**JCE: Another big consideration for potential CCEs is the exam itself. What did you think of the written exam? How hard was it? Did you think it covered appropriate material?**

A.H.M.: A wide variety of material was covered in the written exam; however, as a facility-based biomedical/clinical engineer, you are faced with a wide variety of things. Appropriate material was covered.

L.A.H.: I didn't think the written exam was too difficult and I was able to pass on the first try. Most of the material is intuitive for anyone who is active in the profession. One thing that struck me was that most of the questions were geared towards the management side of things, as opposed to what we traditionally think of when you hear the word "engineer." This makes sense when you think about the fact that most of our job is managing equipment and our programs.

J.M.S.: The exam was difficult in those areas where I was weak. I can tell you that there are a few questions that I will never get wrong again. Overall, the exam covered the areas of practice that you use in the day to day activities of CE.

**JCE: Did you actively prepare for the written, or did you take it just on the basis of your general knowledge? If you actively prepared, how long did you work on it? Did you use a study guide or course?**

A.H.M.: To prepare for the written exam, I purchased the ACCE study guide and used that as an outline for which areas to study. I then constructed a binder for each of the areas and found 24×7 CCE prep articles relating to each area. I would take the sample test provided and then figure out from the questions that I got wrong which areas to concentrate on.

L.A.H.: I studied for the exam off and on for about a year but really concentrated on it for the last 4 months leading up to the exam. I purchased the ACCE study guide and the audio conference for CCE exam prep. The audio conference was very useful because I do a lot of driving and could listen to it in the car. I also went over the textbook A Practicum for Biomedical Engineering and Technology Management by Atlas. I had the textbook from a previous class I had taken.

J.M.S.: Preparation is the key to success in all things. Yes, I used a study guide, took a prep course, bought audio CDs from ACCE, borrowed books, and picked brains on what I should be studying. I spent several months, a few hours per week, gearing up for the exam.

**JCE: What about the oral? Fair? Appropriate? Did you study?**

A.H.M.: I felt that the oral exam process as described was different than what I actually experienced. It was described that I would receive 3 sets of scenarios with questions, have time to review them and write down notes, then answer them for the panel of 3. In reality, the questions that came with the scenarios were never asked by the panel. The panel asked other questions related to the scenarios. Therefore, during the question and answer portion, I felt I had to ask the panel members to repeat the questions they asked (and all of the multiple parts of the questions) because I did not have them in front of me. All of the notes I had written down did not directly apply, so the time allowed for writing the notes was longer than necessary—instead more time could have been allotted for the question and answer portion of the exam.

L.A.H.: I did not study for the oral exam. I wasn't sure what type of questions would be asked, or even how to go about preparing for it. The questions covered hot topics in the clinical engineering world that I had at least begun to think about in my daily work. Again, someone who is actively

involved in clinical engineering should not have any problems.

J.M.S.: I prepped for the oral by taking random questions and giving myself 15 minutes to write up an answer. I got these questions for anywhere I could. The CCE prep course, from ACCE, included a selection of possible oral exam questions.

**JCE: What advice or suggestions would you give to the US Board of Examiners for Clinical Engineering Certification (the folks that created the exams and administered the oral) about the content of the exams?**

A.H.M.: Content was applicable, but the format of the oral exam was frustrating.

L.A.H.: Some more clarification for the oral part would be nice for new candidates. For me, the oral part was this nebulous thing and I wasn't sure what it would entail.

J.M.S.: I thought the exam was well done, both oral and written.

**JCE: Any advice or suggestions about the certification process other than the exams?**

A.H.M.: It took quite some time to hear back about the results of the oral exam. But I understand that there were some unforeseen circumstances that delayed the process this year.

L.A.H.: For new candidates, my biggest piece of advice is to not be intimidated by the exam process. Even the oral portion should not be too much of a problem for someone active in clinical engineering.

J.M.S.: I would like to see less of a time lag between the written and oral testing dates.

**JCE: Did you know who was on the US Board before you met some of them at the oral? Did knowing or not knowing make any difference to you?**

A.H.M.: I did personally know the board members who conducted the oral exam. I recognized them as active members of ACCE but did not know that they were board members. It did not make a difference to me.

L.A.H.: I didn't know who was on the board. I don't think knowing

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who is on the board should make any difference.

J.M.S.: *I did not know who was on the board at all until I walked into the room for the oral. And it made no difference who was there. I was there.*

**JCE: Any final comments?**

A.H.M.: *I did not attend the CCE prep course—but have heard for other individuals that it was very helpful.*

L.A.H.: *I think a useful study technique would be to look at what is being presented at the next AAMI con-*

*ference. The educational sessions tend to be on hot issues within the clinical engineering world, and there's a good chance that those same topics will be asked about as part of your exam.*

J.M.S.: *I urge all to join ACCE and obtain their CCE. If the CE profession wants to gain status and respect within healthcare, we must support and be part of the culture of healthcare. That means continuing education and certification. Not as an end in itself, but*

*as a means to promote the profession and our individual part in it.*

**JCE: Thanks for participating, and again. . . congratulations.**

### Reference

1. Healthcare technology Foundation. <http://thehtf.org/certification.asp>. Accessed October 27, 2010.

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