Whither Certification?

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of interest in the clinical engineering exam led AAMI to discontinue providing it. Convinced that the CE exam is important, ACCE has stepped in to fill the gap.

Standard practices. Higher salaries. Increased safety. These are just a few of the benefits of certification, which is mandatory for many health care professions. But the role of certification for biomedical equipment technicians (BMETs) and clinical engineers (CEs) is somewhat less clear.

Depending on where they are employed, certified BMETs and CEs may or may not achieve the higher salaries and job titles that are standard in professions like nursing. In fact, the interest in CE certification in particular has been so low that the International Certification Commission (ICC), the United States Certification Commission (USCC), and the Association for the Advancement of Medical Instrumentation (AAMI) Secretariat to the ICC/USCC recently suspended their exams for CE certification.

"Statistically speaking, salary surveys performed by the Journal of Clinical Engineering

and AAMI have shown that certified people are paid more—although that does not necessarily mean certification automatically means higher pay," says Binseng Wang, ScD, CCE, vice president of quality assurance and regulatory affairs at Mediq/PRN Life Support Services Inc (now a Hill-Rom company), in Pennsauken, NJ. "There is no uniform rule in the industry regarding certification. Some companies go as far as paying higher salaries, giving bonuses, and covering the cost of certification. On the other hand, there are plenty of hospitals that do not really care about it."

Being certified does mean that BMETs or CEs have reached a certain level of education and experience, since there are minimum requirements to qualify to take the exam. "You have to have done a certain amount of relevant work and show that you've been active in the field, taking courses, attending conferences, or reading books," says Frank R. Painter, MS, CCE, president, Technology Management Solutions, in Trumbull, Conn. Painter also teaches courses in clinical engineering at the University of Connecticut and is director of the school's clinical engineering internship program. "Once you acquire the necessary experience and education and demonstrate that you are current in the field, you are eligible to take the CBET or CCE exam."

Frank R. Painter and clinical engineering students at the University of Connecticut.

Exam Specifics

AAMI administers certification programs and exams under the auspices of the ICC for Clinical Engineering and Biomedical Technology and the USCC. For BMETs, an all-volunteer 18-member board of examiners reviews and evaluates questions for the examination twice each year. AAMI administers the certification programs for biomedical equipment technicians (CBET), radiology equipment specialists (CRES), and clinical laboratory equipment specialists (CLES). One certification is not a prerequisite for another, and each requires a separate, complete examination. Applicants may test in only one discipline per examination cycle. Although the ICC/USCC no longer offers the exam for clinical engineers, AAMI continues to maintain certification renewals for individuals who had been awarded certification under this program.

For CEs, a new program was launched last year through the efforts of the American College of Clinical Engineering (ACCE), Painter says. "Two years ago the Healthcare Technology Certification Commission (HTCC) was formed and the US Board of Examiners for Clinical Engineering Certification began working on a new exam," he adds.

"This exam is significantly different from the old CCE exam. Rather than testing on subjects that an engineer would learn in college, including engineering, medical science, and instrument design, the new CCE exam tests on the current clinical engineering body of knowledge, the information a clinical engineer needs to know to perform their job on a daily basis," says Ray Zambuto, CCE, FASHE, president of Technology in Medicine Inc, Holliston, Mass, and the current president of ACCE. "Every 3 years ACCE conducts a survey of the field to determine what the body of knowledge is for CEs," he adds. "We not only look at what CEs need to know, but also the relative proportions of the use of that knowledge. That is fed back to the board of examiners for constant evaluation of the exam. We're looking to see an exam and a process that will have more value to the CE community as time goes on. ACCE performed the first survey 3 years ago and is planning the next body of knowledge survey for later this year. The CCE exam will then be adjusted to track the current body of knowledge."

The HTCC gave the new CCE exam in November 2003 and will give it again in November 2004. They have hired Professional Testing Corp (PTC), the same organization the ICC/USCC process uses for its CBET, CLES, and CRES exams. The Board of Examiners provides the technical content for the questions and PTC works with them to create valid and appropriate test questions that are properly worded and straightforward.

The new HTCC certification program has offered recognition to CEs who previously received their CCE certification under ICC/USCC. As a result, more than 100 CCEs who are currently practicing will be listed by the new program along with all those who will achieve certification in clinical engineering in the future.

AAMI funded an independent market study several years ago because the number of CE certification applicants had fallen to one or two a year. The study found that there was a limited demand for CE certification in the United States in terms of what certification experts consider an adequate demand to maintain a program. Only 497 engineers have been certified since the program's inception in 1974. In contrast, the ICC/USCC-sponsored BMET certification program has certified nearly 6,000 people and the number of applications is approximately 275 each year.

"It's not clear why there were so few CCE applicants, but there was no way for AAMI to justify the cost of continuing to test for new CE certification," says Bob Stiefel, MS, CCE, director of clinical engineering services at Johns Hopkins Hospital, Baltimore. "The obvious initial conclusions would be that there simply aren't that many CEs and

that there is virtually no incentive other than personal pride to get this certification. It didn't seem to make any difference to current employers or very few employers looking for engineers."

Zambuto attributes that apparent lack of interest in CE certification to several factors. "When [ICC/USCC] suspended certification testing in 1998, the exam had fallen out of sync with the body of knowledge," he says. "They also had not been getting sufficient public relations support for certification as valuable. These were factors, noted in the AAMI survey, that led to a reduction in people applying for it."

Painter says, "ACCE felt that having the CCE program was so important for the profession as a whole that they were willing to reengineer it using the experts' recommendations and put it back in place. In fact, ACCE has designed the CCE program structure and processes such that the program will be eligible for accreditation by the National Organization for Competency Assurance—the JCAHO of certification programs.

"The challenge is that the certification tests need to be professionally relevant in order to have CEs or BMETs find an advantage to certification. The exam for CE certification that [ICC/USCC] used to give had not been changed for many years and had lost its relevance to the current field of clinical engineering. We don't find that with the BMET certification exam because that exam is adjusted to track the body of knowledge," he adds.

That problem has now been resolved for CCE's with the new exam.

Benefits of Certification

The support of respected facilities, like Johns Hopkins Hospital, that pay all costs for certification—study materials, attendance at seminars or training sessions, travel expenses, and the fee for taking the exam—supports the push for more certification in the field.

"Promotion for BMETs is usually automatic upon BMET certification, so obviously we're encouraging it," Stiefel says. "It used to be the same for CEs, but we had to drop that when the ICC/USCC suspended the certification program. We'll have to see what happens with ACCE certification to see if we will return that as a requirement."

Zambuto's company does not require certification, but does provide training toward that goal and rewards BMETs and CEs who attain certification. "It affects the salary

schedule too," Zambuto says. "I wish that were the case across the board in the industry. Certification is a good measure of not only the fact that someone has displayed the knowledge required for a position, but also that the individual has a more professional attitude toward work." And Wang says, "In terms of CEs, my impression is that the cream of the crop is still seeking certification as a way to distinguish themselves."

The State of Licensure

Compared to certification, there is more diversion in opinions about the value of licensure in the field. "I don't have a strong opinion on whether licensure should be required like it is for other health care professionals," Stiefel says.

"The difference is that all the other health care professionals that are licensed are hands on. We are one step removed from that, so I think it would add an unnecessary complication and hardship to hospitals if they had to recruit and retain [only] licensed BMETs and CEs."

Stiefel does concede that required licensure would remedy the slow but certain demise of community college and technical school programs in biomedical technology. "If licensing were required, there would be stronger demand for the programs that community colleges and technical schools offer," he says. "There also would be a reduction in either unqualified or minimally qualified folks being hired to do the jobs that should be filled by BMETs. However, I don't know how much of a problem that is because I've never let it be a problem where I've worked," he adds.

On the other hand, Wang and Zambuto express support for the idea of licensure. Wang in particular has advocated licensure as a way to not only protect the profession, but to protect the safety of patients.

"One thing I want to emphasize is that licensure and certification are not mutually exclusive," Wang says. "In my mind, certification should continue even if licensure is imposed by a government. Licensure is a minimum and certification should be a way to distinguish the best."

"Licensure would be the ultimate," Zambuto agrees. "There is no question that would be the best of all possible worlds, but realistically we've been talking about it since 1965 and it hasn't happened. Unless there is some epiphany for the industry, it's not going to happen."

Future of Certification

For now, all certification and even professional registration in the field of health care technology management and support remain voluntary, and few see that changing in the near future.

"The situation is in flux," Zambuto says. "With regard to technicians, I think certification will become increasingly important as time goes on. Medical equipment continues to grow more complex and medical technology continues to extend into IT, and so certification becomes more and more important. The IT folks have active technical certification programs (A+) and management programs (CPHIMS) that will drive BMETs and CE's to value it even more. For CEs, managing and integrating the new technologies mean more will ride on their decisions and recommendations in terms of cost, care, and safety. Certification will be an important measure of skill for employers."

Painter also notes that certification is an accurate indicator to tell who has the necessary knowledge to function in the field.

"There are some who think the need for clinical engineering is declining, but I'm convinced that the need for managing the risks of medical devices, improving the quality of maintenance programs, evaluating compliance with codes and standards, providing technology assessment and new product evaluations, and improving patient safety by making changes in the way clinicians use technology are activities that are on the rise and are cost effective. Yet, these are activities that are sometimes overlooked when purchasing or reengineering technology support services," he says. "When hospitals do look to acquire these services, someone who is certified in clinical engineering is a safe bet for them in choosing the right person for the job.

"The students who graduate from the clinical engineering internship program at the University of Connecticut have the opportunity to apply for 10 to 15 openings, and, in fact, most students get three to five job offers in the field, he continues. Typically I see a huge demand for technology managers with engineering degrees and higher education throughout the health care industry, and there are not enough people to fill these jobs."

"As it stands now, certification is a very good process," Stiefel agrees. "In any technical field, you are only as good as your current education. Certification is an indication that the individual is capable and willing to learn new material. This field is changing and I'm looking for folks who can change with it."

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