

Association Française des Ingénieurs Biomédicaux (AFIB) Newsletter interview

Interviewee: Binseng Wang, ScD, CCE – Chair, ACCE International Committee

1) The AFIB has signed a partnership agreement with the ACCE, can you introduce yourself and the missions of your association?

I am Binseng Wang, the current chair of ACCE's International Committee. I have been a member of ACCE since its founding in 1990 and have served in various capacities. [Optional: After earning a doctoral degree at MIT, I worked over 40 years for an in-house CE department and two major independent service organizations (ISOs), as well as government agencies, research laboratories, universities and manufacturers.]

ACCE's mission is composed of 4 elements:

- To establish a standard of competence and to promote excellence in clinical engineering practice
- To promote safe and effective application of science and technology in patient care
- To define the body of knowledge on which the profession is based
- To represent the professional interests of clinical engineers.

2) Can you tell us the profile of the members of ACCE (engineers, technicians, companies, hospitals)

ACCE has currently about 1,000 members, most of them have a bachelor's degree in engineering. While most of them are in USA and Canada, we also have members from ~45 countries. A small fraction of them has an associate degree in engineering technology or are students in engineering school or graduate programs. We also have ~25 corporate/institutional(hospital) members. Finally, we have ~27,000 collaborating members from foreign countries through collaboration agreements with 19 foreign associations, like the one we have with AFIB.

3) Can you briefly describe the function of clinical engineer in the US (number of people, public private distribution)?

ACCE members, as well as clinical engineers who are not members of ACCE, work in a variety of organizations within the US, ranging from manufacturers, hospitals, service organizations, government agencies, consulting companies, parts vendors, and research/teaching organizations. Their roles vary from quality, manufacturing, service to sales, marketing and teaching. There is no precise count of the number of CE professionals working in the US. A gross estimate is that there are about 22,000 CE professionals, of which only about 1,000-1,500 have at least a bachelor's degree. The public sector is very small because the vast majority of American hospitals are private (although not for profit). The only significant public hospitals are those that belong to the Dept of Defense (Army, Naval, etc.) and the Veterans Administration, which has about 1,800 CE professionals of which about 400 have at least a bachelor's degree.

4) How is maintenance distributed in the territory (in-house or outsourced maintenance)

In terms of market share, the in-house CE teams are responsible for about 56% or \$7.0 billion of maintenance services, while independent service organizations (ISOs), manufacturers (OEMs)

and other third parties are responsible for the rest, i.e., 44% or \$5.4 billion. About \$2.0 B is earned by OEMs and third parties doing service through service contracts and as needed services, while the rest (\$3.4 B) is spent on ISOs and OEMs that deploy on-site teams working like the in-house CE departments (aka outsourcing).

5) How is the evaluation of engineers' skills and continuing education carried out in the US?

Currently, the CE profession is not regulated in the US. Also, unlike many other countries, the title of engineer is not restricted to holders of bachelor's degrees in engineering. The only regulated professionals are the "professional engineers," which are licensed by individual states for a variety of engineering specialties but none for biomedical or clinical engineering to the best of my knowledge. A voluntary certification for clinical engineers is offered by the ACCE's Healthcare Technology Certification Committee. Another voluntary certification is offered by AAMI for Healthcare Technology Management, known as Certified Healthcare Technology Manager (CHTM), but it does not require the applicant to have earned a bachelor's degree in engineering. Other certifications that do not require a bachelor's degree in engineering are also available, e.g., certified biomedical equipment technician (CBET), certified radiology equipment specialist (CRES), and certified industrial sterilization specialist (CISS). Certified professionals are required to earn additional education credits in order to renew their certifications.

6) You are currently working for Sodexo, can you tell us about this French company in the field of clinical engineering in the US and worldwide?

Within North America, Sodexo has a Healthcare division that provides food, patient nutrition, environmental services, facility management & CE/health technology management (HTM) services to healthcare delivery organizations (HDOs). Sodexo HTM currently has about 650 employees stationed in about 100 HDOs in several states. These HDOs operate a wide range of acute beds, ranging from <100 to over 1,500, and many of them are associated with medical and nursing schools. The equipment we manage can be divided into three categories:

- a) biomedical (ranging from vital signs monitors, patient scales, and endoscopy systems to surgical robots);
- b) imaging and radiation therapy (ranging from ultrasound, portable X-rays, CT and MRI scanner to linear accelerators);
- c) clinical/pathology laboratory (ranging from centrifuges, microscopes and blood chemistry analyzer systems to electron microscopes).

We also have a small group of field service engineers who respond to service requests from ambulatory surgical and diagnostic centers and hospitals for their biomedical and imaging equipment on an as needed basis within the US. Outside of the US, Sodexo provides HTM services in Canada, UK, India, Thailand, China, & The Philippines.

DISCLAIMER: My response to this question from AFIB simply reflects my current employment at Sodexo and does not imply endorsement of Sodexo by ACCE.

7) How do you see the exchanges with the AFIB (Webinar, exchange course...)

ACCE hopes to increase exchanges with our AFIB colleagues through webinars, in-person conference participations, in-person or virtual workshops, document exchanges, etc. so we can improve the understanding of each other's activities and innovations, and ultimately to advance

the profession and promote safe and effective application of technology in healthcare around the world.