

# Training and Certification of Clinical Engineers in Asia

**Azman Hamid**

Senior Manager, Technology Management  
Healthtronics (M) Sdn Bhd  
Manager, CAHTMA

# Training and Certification

Why is certification required?

- To ensure only competent personnel undertake the maintenance
- To ensure continuous education of personnel
- To ensure personnel understand basics of clinical engineering and undergone a standard set of knowledge-pack
- To emphasize the need to ensure patient safety



# Training and Certification

In Asia...

- No known certification body
- Clinical engineering was unknown before 1990s
- No platform to integrate clinical engineers
- Clinical engineers were relatively superficial in their contribution to healthcare organisations' strategic vision
- Lack of industry-academic institution interaction
- Vendor-driven maintenance concept



# Training and Certification

In Malaysia...

- Medical Device Act is being drawn-up
- Certification of biomedical engineering personnel will become mandatory
- Continuing Professional Development (CPD) will be required for engineers and technicians to maintain certification
- Biomedical Engineering Association Malaysia (BEAM) and Commission for the Advancement of Healthcare Technology Management in Asia (CAHTMA) are working closely together to certify clinical engineers and biomedical engineering technicians

# Training and Certification



CAHTMA...

**C**ommission for the **A**dvancement of  
**H**ealthcare **T**echnology **M**anagement  
in **A**sia



Commission for the Advancement of Healthcare  
Technology Management in Asia

# Training and Certification



CAHTMA...

- Platform to discuss and exchange ideas on healthcare technologies
- The Commission is to be used as a vehicle for the advancement of knowledge and practice, assessment and management of healthcare technology for all countries in the Asian region

# CAHTMA - Scope



# CAHTMA - Justifications

- No coordinated certification of biomedical technical personnel in the region
- Biomedical engineering has not been readily accepted and respected as an engineering discipline
- Engineering support on patient safety has not been fully coordinated
- No coordinated courses and understanding on biomedical engineering standards



# CAHTMA - Justifications

- Lack of understanding of the roles and functions of relevant international organisations (FDA, IEC, JCI, GHTF, AAMI, etc.)
- No sharing of information on best biomedical engineering practices

# CAHTMA - Methodology

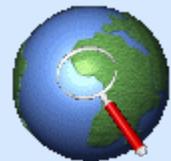
The Commission will initially concentrate on the methodologies, procedures, practices and technical aspects of the management of technology by the way of arranging:

- *Seminars/Workshops*
- *Technical Trainings (Biomedical Engineering)*
- *User training*
- *Training on standards*
- *Issuance of certifications*
- *Certification of biomedical training centers*

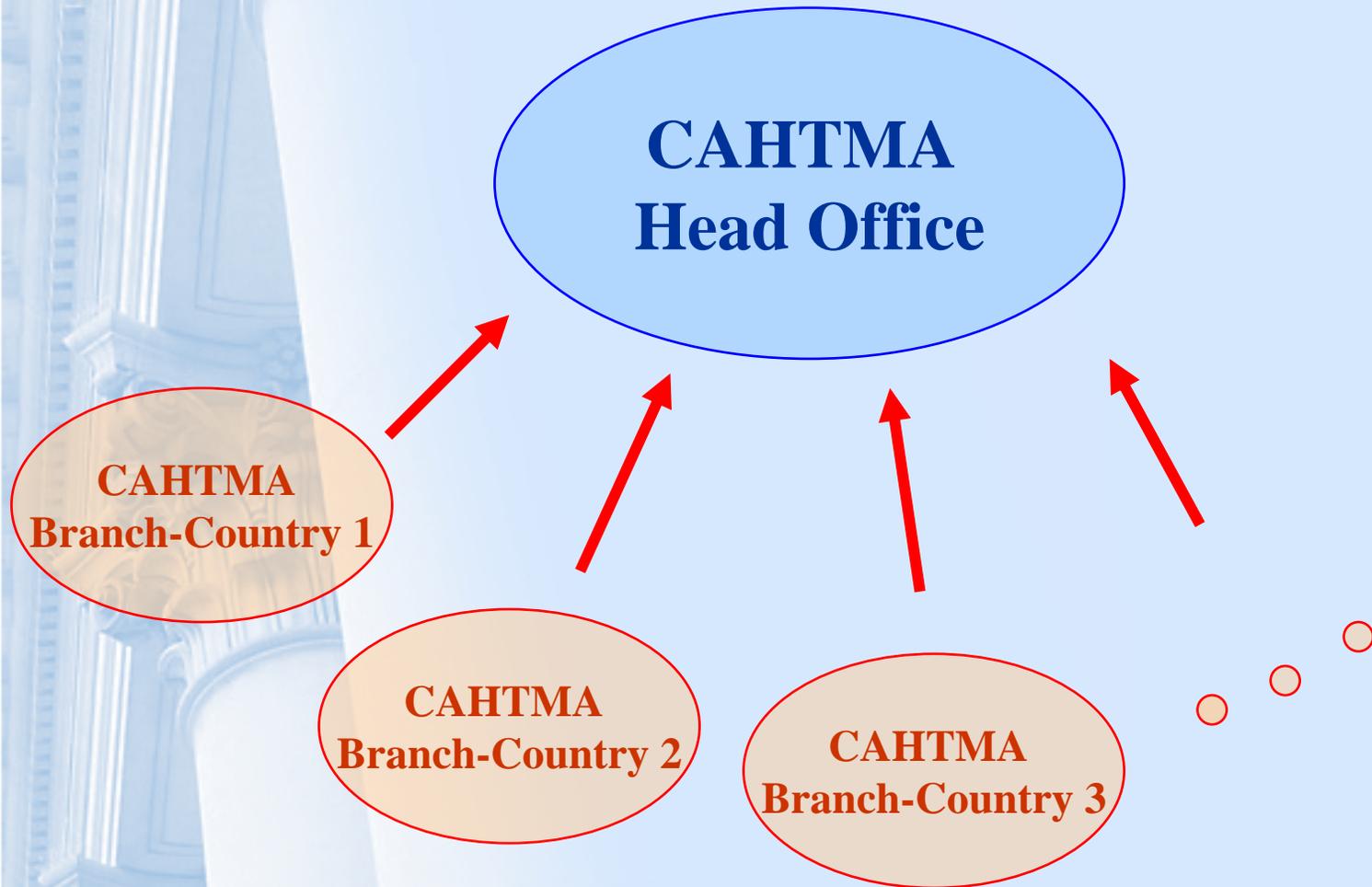
# CAHTMA - Alignment

The following are required for effective operations:

- Harmonisation with other certification bodies
- Access to pool of trainers and practitioners
- World-wide recognition of certificates
- Manufacturers support (trainers, equipment, training)
- Local government support on initiatives



# CAHTMA - Structure



# Training and Certification

Healthtronics (M) Sdn Bhd...

- A biomedical engineering company providing consultancy and maintenance of biomedical engineering
- Currently employs about 300 biomedical engineering engineers and technicians
- Operates in Malaysia (73 sites), Brunei (4 sites), the Philippines (13 sites)
- Established its National Training Center in 2003 to train biomedical engineers and technicians

# Training and Certification

In Malaysia...

Healthtronics (M) Sdn Bhd has designed training programmes to suit the local requirement:

- Part I - Basic biomedical engineering, theory & practical
- Part II - Intermediate device specific program
- User Training Modules
- Optional Modules



# Training and Certification

Concerns...

- *Acceptance of certifications*
- *Laser technology*
- *Priority of test equipment*
- *Manufacturers/vendors support and concurrence*



# Training and Certification



The Rising Nepal

By Indira Aryal,

KATHMANDU, May 2: When something goes wrong with sophisticated medical equipment, it is most often abandoned in the store due to lack of repairing hands.

Equipment failure, incorrectly prepared sample, not properly calibrated instruments and poorly trained machine operators are the leading reasons behind the poor delivery of health services in Nepal.

“Most health centres do not have effective equipment maintenance programmes, resulting in incorrect diagnosis and poor treatment and monitoring,” a paper presented at a bio-medical seminar last week pointed out. **Inadequate maintenance accounts for 64 per cent of equipment failure.** This is where the role of biomedical engineering comes in. Medical Superintendent at the Bir Hospital Dr. Damodar Prasad Pokhrel said that 50 per cent of the problem related to quality control, maintenance and selection of right equipment is due to lack of knowledge about biomedical engineering.

**The country’s oldest and largest hospital does not have a biomedical engineering section and there are no biomedical engineers. The government has been talking about establishing a biomedical engineering unit in the hospital for the last two years, but nothing has happened due to lack of manpower.**

No one knows how many bio-medical engineers there are in the country. The seminar put the number at 20, but Sujeet Banskota of Biomedical Customer Service Engineer puts it at 15. Three of them are working at the Teaching Hospital at Maharajgunj.

**Dr. Pokharel said that all hospitals needed biomedical engineers, but there were not enough of them. So many hospitals must rely on the available manpower to maintain and repair their equipment, resulting in delays.**

# Training and Certification



The Rising Nepal

**A lot of equipment remains unused because people here do not know how to use them.** This is more so in the hospitals outside Kathmandu.

He cited an example of a hospital purchasing a sophisticated ultrasound machine. When received, it was discovered that many of the features, for which it had paid heavily, could not be brought to use due to lack of trained hands, Topham said.

**“Biomedical engineers are not involved while purchasing equipment and that leads to buying stuffs that do not meet the specific needs of the hospital.”**

Dr. Pokhrel said that only 40 per cent of the doctors are trained in using medical equipment. “It would be better not to buy equipment if there is no one who knows how to use it,” he said.

A good maintenance programme could reduce equipment failure to 13 per cent of its present value.

But biomedical engineering is an expensive field. Banskota said it costs anywhere between Rs. 1-3 million to study biomedical engineering. He also said that many biomedical engineers did not return to the country due to lack of jobs.

The goal of biomedical engineering is to keep medical equipment well maintained and celebrated for the best possible patient care.

**Dr. Pokhrel said the annual maintenance cost of a piece of medical equipment is about 1.5 per cent of the original cost. In Bir Hospital, no budget is allocated for repairs and maintenance. Twenty per cent of the equipment in the hospital is in need of repairs.** The problem with medical equipment is its age. Banskota said that companies give only one to three years' warranty for their equipment, but many hospitals here use equipment as old as 20 years with simple repairs.