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Clinical Engineers in Japan and the U.S.: Differences, Similarities, and How They Are Tackling Challenges

Sunday, June 7, 2015 | 10:00 am-11:00 am

YOSHIOKA Jun, MPAS, CCE
Yamagata University Hospital
JACE (Japan Association for Clinical engineers)

Today's Topic

Representatives from Japan and the United States will provide a variety of timely topics, and the similarities and differences between the clinical engineering professions in their respective countries.

Don't miss this opportunity to hear how your colleagues from these two countries are handling the same challenges.

Find out what lessons we all can learn from each other and bring your own experiences to share with your peers.

What are
"Japanese Clinical Engineers"

Clinical Engineers: Japan

Clinical engineers (CEs)

Established in 1987

Education

University (4 years) or academy (3 years)
Masters (MS) course (2 years)
Doctors (PhD) course (3 years)

National license

Need to pass a national examination

Clinical Engineers (CEs)

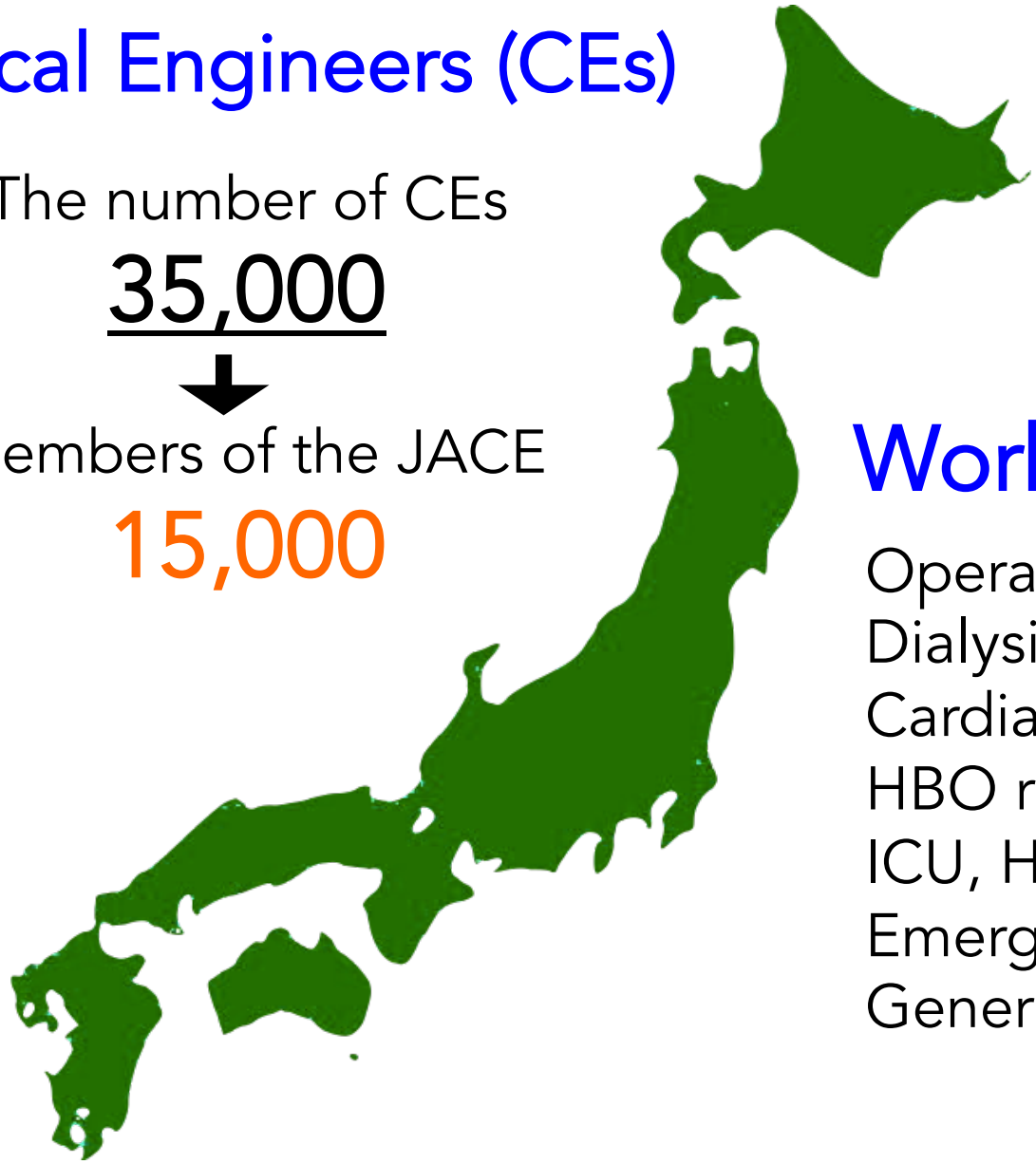
The number of CEs

35,000

↓

Members of the JACE

15,000



Work place

Operating room
Dialysis
Cardiac cath lab
HBO room
ICU, HCU, NICU
Emergency room
General hospital ward

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Business operations: Japan CEs

Operating equipment in the clinical environment 50%*

- Respiratory therapy (Mechanical ventilator)
- Perfusion (HEART-LUNG machine)
- Dialysis (Dialysis equipment)
- Operative treatment (Surgical equipment)
- Intensive care units
- Cardiac catheterization
- Hyperbaric oxygen therapy
- Other treatment (defibrillators)
- Pacemakers
- Implantable cardioverter defibrillators (including CRT-D)

Service Delivery Management 10%

Patient Safety 10%

Healthcare Technology Management (HTM) 20%

Education 10%

* Using ACCE 2010 BOK HT Activity Definitions

Typical Activities of the JACE

(Japan Association for Clinical engineers)

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Japan: Certification System

Related to Equipment Operation: Certification enhances the ability of CEs to engage in more extensive duties and develop specialties, as well as provide better health care services.

Certification by the Associated Societies; Qualification

Dialysis technology, Extracorporeal circulation technology,
Respiratory therapy, Hyperbaric oxygen therapy,
Clinical medical engineering equipment technologist,
and Apheresis treatment.

Certifications by the JACE (Founded 2010); Specialization

Blood purification CE specialty
Arrhythmia treatment CE specialty
Respiratory treatment CE specialty
and Hyperbaric oxygen therapy CE specialty

※ The JACE are also in the middle of investigating those other Certifications.

The 25th Congress of Japan Association for Clinical Engineers

Congress of JACE, in 2015

May 23-24, Fukuoka

Participant: 5,000
Facility: 2 (Hotel and International Conference Center)
Room: 18
Presentation
Oral: 500
Poster: 120
Lecture: 5
Public lecture: 2
Symposium: 4
Workshop: 17
Exhibition: 40
Luncheon seminar: 18

The 23rd, YAMAGATA

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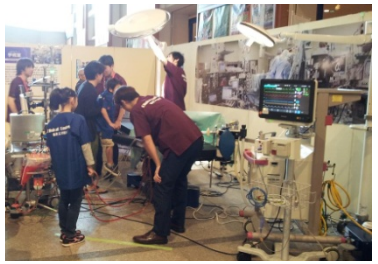
JACE Kids Seminar

The JACE wants kids to become a clinical engineer, **if kids likes.**
So the JACE is hosting awareness building activities for kids.



The 23rd Congress of Japan Association for Clinical Engineers, YAMAGATA

This public relations campaign in promoting the kids seminar helped to gain publicity for the CE.

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Case Study on the Differences between Japanese & American CEs:

2014 Visit to US Hospital

※ American CE teams includes BMETs

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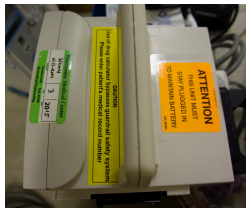
Westchester
—MEDICAL CENTER—



Sr. Biomedical Engineer

Tamotsu Tsunekage

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Managing medical devices by CEs

Japan	US
Syringe pump, Infusion pump	Syringe pump, Infusion pump
Mechanical ventilator	Mechanical ventilator
Patient monitor	Patient monitor
IABP, PCPS	IABP, PCPS
Dialysis equipment	Dialysis equipment
Incubator	Incubator
and other equipment…	and other equipment…
American CE teams are able to manage imaging equipment!!	Plus X-ray MRI

※ US CEs have the wider sphere of activity regarding the HTM of medical equipment than Japanese CEs

Case Study CE Differences

Japan

1. HTM of medical equipment
2. CEs primarily conduct life cycle management activities.
3. Oversee technicians who maintain equipment
4. Not yet
5. Not yet

US

1. HTM of medical equipment
2. CEs primarily conduct life cycle management activities.
3. Oversee technicians who maintain equipment.
4. Conduct CE-IT, device integration with electronic medical records.
5. Conduct medical device alarm safety in hospitals.

- Especially, the alarm notification system is important to reduce alarm fatigue and prevent or detect adverse events.
- Japanese CEs should also actively manage the alarm notification system.
- To achieve this goal, we must learn latest the alarm notification system from the ACCE.

Salary

	Japan	US
Clinical Engineer（CE）	$ 30,000～65,000	$ 80,000～120,000
Biomedical Engineer（BME）	---	$ 54,000～98,000
Biomedical Equipment Technician（BMET）	---	$ 45,000～58,000

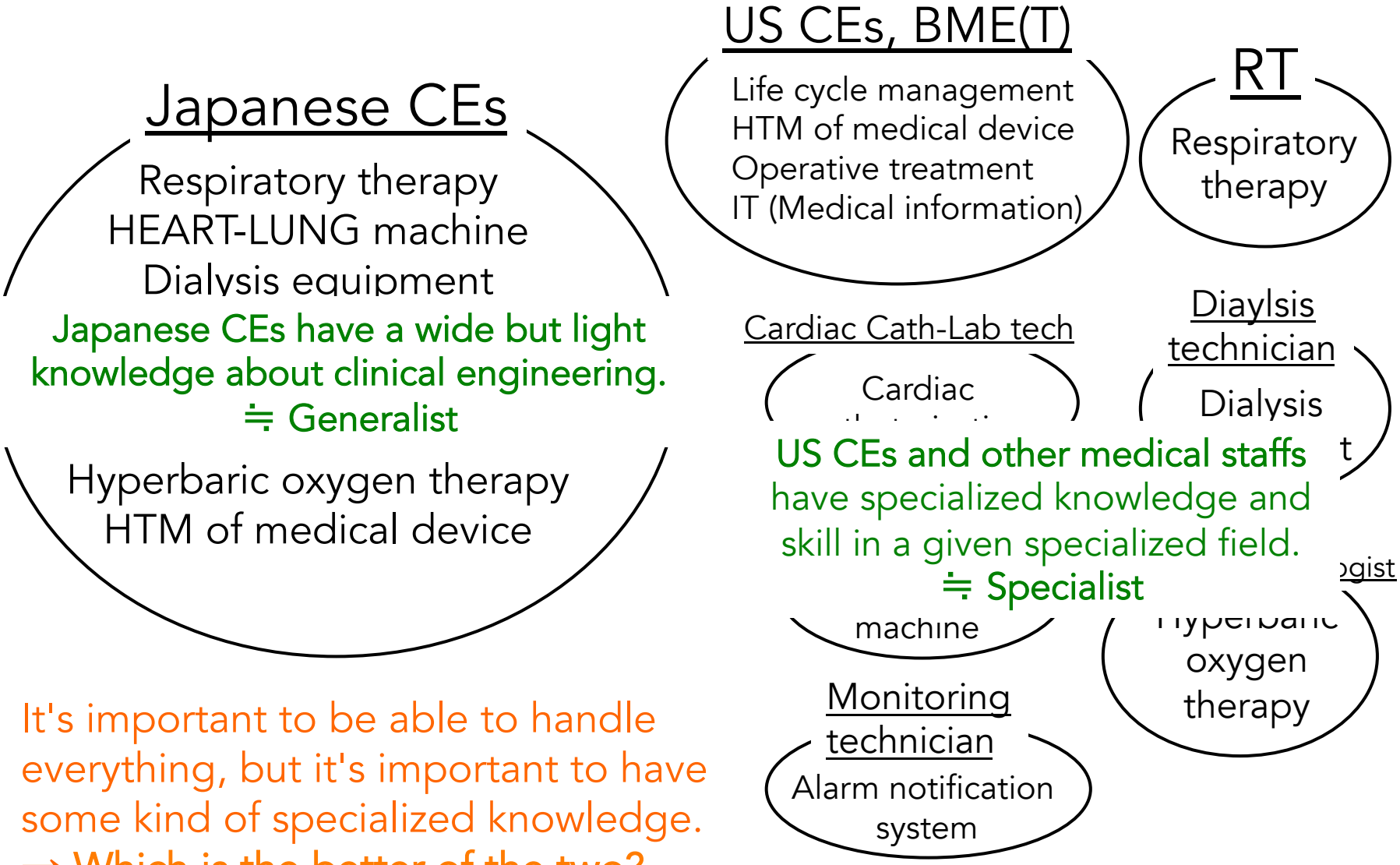
The salary of a Japanese CE is lower than that of an American CE.

(All medical professionals are paid very high salaries in the US.)

Especially in the United States, profession as clinical engineers are quite popular and are highly evaluated.

The biggest difference between Japanese & American CEs

Generalist or Specialist



It's important to be able to handle everything, but it's important to have some kind of specialized knowledge.
→ Which is the better of the two?

Prospects for the future

(HTM)
A clinical engineer is an essential profession for the safe operation of medical equipment.

Clinical engineering has decreased medical equipment failure which exposes patients to potentially harmful risks.

In addition to HTM,

・The JACE must learn latest managerial skills for medical equipment like American CEs.

・It is important to introduce an ACCE's advanced CE education system in Japan.

Safety management; HTM

- **Earlier**

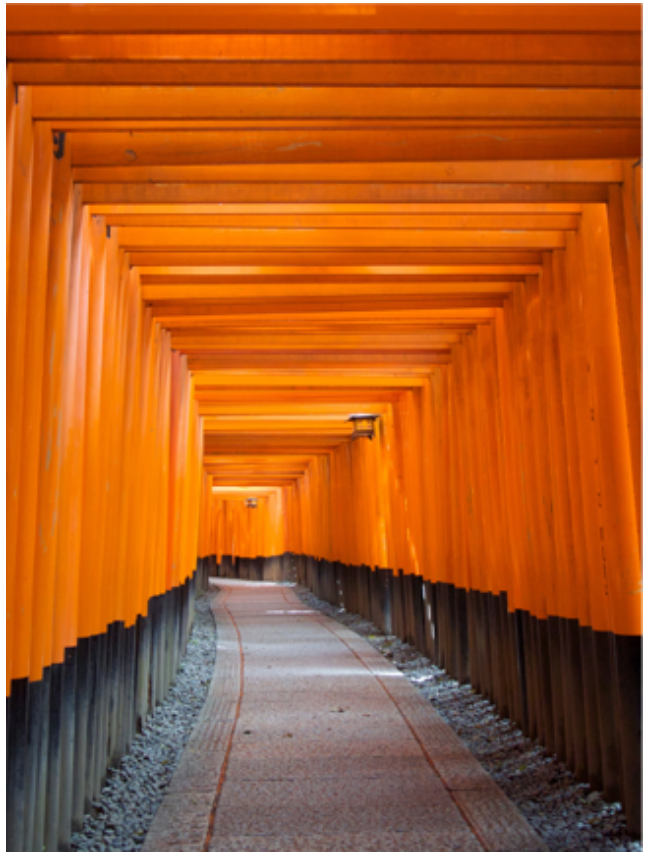
The equipment was simple and rugged, so did not break down easily.

- **Present day**

Modern critical care medical equipment has numerous CPU boards and sensors, and more failure points.

- **Key CE services**

Increased special HTM by CE is necessary.



KYOTO, Japan

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Conclusion

Japanese CEs operate and maintain high technology medical devices such as a life support system in Japan.

US CEs primarily conduct life cycle management activities and oversee clinical technicians who maintain equipment.

Both professions are very important in HTM in the world.

Acknowledgements

We recognize members at the American College of Clinical Engineering (ACCE), USA for their helpful and constructive comments on this session.

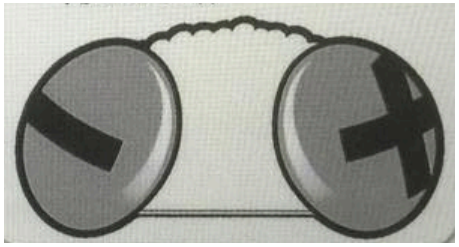
The Japan Association for Clinical Engineers also appreciates the ACCE for their faithful service to their country during the tragic 2011 Tsunami.

END

Thank you all for listening
Questions?

SHEEP-RIN: JACE's mascot character

SHEEP-RIN



The basics of this character is sheep (animal).
The sheep has the motif such as Humanity and Clemency.
The heart expresses “Clinical".
Ears expresses bolts.
There is a gear in heart.
Bolts and the gear expresses “Engineering".

In addition, the tail becomes AC cord.