Netherlands

1. State of Clinical Engineering (CE) - Health Technology Management (HTM) – Body of Practice (BOP)

Role and position of the CE in The Netherlands

A Clinical Engineer (CE) is driven to optimize healthcare with the help of technology, such as new technological developments and methods to improve processes. The Dutch association of Clinical Engineers (BMTZ) was established to bundle the power of the growing number of CEs working in Dutch healthcare. We believe that medical technology can be used more safely and effectively to improve healthcare. To achieve this, a CE acts as a professional in the area between:

- Technology in care processes
- Healthcare professionals
- Management

The CE’s main tasks are:

- Establishing and monitoring supported procedures in accordance with current legislation and regulations (including the Covenant on Safe Application of Medical Technology in Hospitals).
- Implementing, monitoring and adjusting the procedures.
- The actual organization of the medical-technological input in the care process.
- Taking care of the quality process incl. Risk analysis.
- Preventing dangerous or unclear situations.
- Coordinate the content of education and training.
- The development and monitoring of performance indicators.
- Monitoring the coherence of technology policy.
- Contributing to a reporting point for incidents.

CE in the hospital organization

As a medical technology coordinator, the CE must report directly to a member of the board of directors. In the Technology Committee, the coordinator works closely with officials who are involved in medical technology in a broad sense.

As a medical technology coordinator, the CE can in principle operate from two positions: the line position with an executive responsibility for medical technology or the staff position with a responsibility for the quality process. Both positions have advantages and disadvantages. Condition for proper positioning is that the officer has sufficient authority in dealing with complex and acute situations, that he is sufficiently aware of substantive details and risks, that the officer can operate independently, and that he has sufficient information and management options.

BMTZ advises choosing a staff position in the organization, because this role fits more with the independent advisory role that is essential for this officer. The theme "medical

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technology” covers the entire process of medical technology, and should ideally not be filled in by a technology management department.

Body of Practice of the CE
The CE works as an bridgebuilder between (Medical) Technology and Healthcare and policy and daily practice. This means BOP of the CE is on all the different levels of the organization and with all different healthcare professionals, management and supporting groups.

BOP examples:

- CE postmaster projects
- ICEHTMC abstracts
  - DASHBOARD FOR QUALITY AND SAFETY ASSURANCE IN MULTIDICIPLINARY LIFE CYCLE MANAGEMENT OF MEDICAL EQUIPMENT IN A HOSPITAL, N. Kruis, Netherlands
  - OPTIMIZATION OF PATIENT SAFETY, WORK- AND CURE ENVIRONMENT IN NEW SINGLE-BED CARE UNITS IN RIJNSTATE, N. Kruis, Netherlands
  - MEDICAL ALARM SYSTEMS: WHERE DOES IT GO?, Jentink A, Van Vuuren W, Van Der Stoel M, Netherlands

2. How would you suggest to show the Value of and from having CE-HTM program
The CE is an indispensable professional in current healthcare. This dynamic healthcare world requires a process-oriented, university, technical professional with an affinity for healthcare.

To show the value of CE we should:

- Present accomplishments on national and international level at conferences and other events.
- Local and international publications
- Organize events and conferences for a broad audience (not only CE and related professions)
- Show hospital management the advantage of CE in the optimization of processes in a healthcare organization and the resulting efficiency and improvement of quality of care.
- Participate in local and international activities and initiatives in the field of Medical Technology (MT)
- Participate and take a (leading) role in the development of new standards and regulations
- Publish success stories on the sustainable and more efficient use of MT
- Improve cost savings, standardization, efficient deployment, business operations
Global Clinical Engineering Summit 2019 – CE Status Report

- Take an active role in the Umbrella Organization of Medical Technology where different professional associations are united
- Take an active role in the national implementation of regulations like MDR
- Participate more in the drafting of important national and international documents such as Medical Information Technology Practice Guide

3. Example of success stories where CE supported patient outcomes

The CE has a role in the continuous improvement of Healthcare through technological innovations and optimization of hospital processes where MT plays a role.

Success stories

- **Successful projects of CE during there Qualified Medical Engineer – CE postmaster track**
- Integrated publications in field of MT on national platform of MT: [https://mtintegraal.nl/](https://mtintegraal.nl/)
- Participation in MT innovation projects
- Participation the interpretation and implementation of (inter)national regulations like MDR and Dutch “Convenant Veilige Toepassing Medische Technologie” and Initiation and participation in creation of standards and guideline documents. The influence on patient outcome of these projects is often indirect and hard to measure but reduces the patients risks and possible resulting harm.
- Contribution to the national agenda of medical technology 2020-2024
- Participation in successful implementation and management of new innovative technologies in healthcare organizations.
  - Next Generation Nurse Call
  - Ehealth
  - Continuous Monitoring
- Optimization of business operations and processes:
  - Central Management of Medical Technology
  - Operation Room logistics and use of technology
  - Standardization of medical technology

4. CE Education program available (levels and content) – Body of Knowledge (BOK)

**Post Master Qualified Medical Engineer (QME)**
(School of Medical Physics and Engineering (SMPE), Tech, Eindhoven University of Technology)

- Post Master Qualified Medical Engineer (title Professional Doctorate in Engineering (PDEng))

Education/training programs and courses in the field of Medical Technology

- Educational sessions/symposia/congresses and Training days in medical technology and related subject of the work field of the CE

www.ced.ifmbe.org
o Courses about technology, skills and competences for registration and credentialing of CE (CanMEDs criteria for competences)

5. CE Association/Society and Credentialing/Certification program if available

National CE association BMTZ

BMTZ credentialing/certification system

- Registration and certification of official CE by consillium
  - Background:
    - Academic master degree in technical field (Engineer)
  - Work field
    - Work in a hospital under the collective labor agreement of an university medical center or national hospital
  - Competences
    - Prove of competences by followed educations and/or experience

- Periodic re-certification by prove of continuous learning/education, use of skills and experience
6. CE major challenges (think of 3 subjects)

- Recognition of the CE profession and position
- Standardization of methods and activities on national and international level by sharing of knowledge, skills and experiences/best practices to improve quality and efficiency. (Stay up to date on developments in MT)
- Help improve access to health services and technology in developing countries

7. What is the most important action you will support to increase CE recognition

- Participation in improving cooperation between CE organizations in the world
- Formation of standard profile for CE profession and position
  Sharing of information and experiences

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