

# Guide to Professional Practice Biomedical Engineering Technology Services

## *Applied Science Technologists and Technicians of BC (ASTTBC)*

### 1. DEFINITIONS

**Registrant** means a person or certified member regulated under the Applied Science Technologists and Technicians Act (ASTTBC).

**AScT** means a person who is certified and registered as an Applied Science Technologist with ASTTBC.

**CTech** means a person who is registered as a Certified Technician with ASTTBC.

**Direct Supervision** means the responsibility for the control and conduct of the engineering technology work of a subordinate where required ASTTBC policy or by law.

### 2. PURPOSE

This Guide to Professional Practice for Biomedical Engineering Technology Services (the “Guide”) has been adopted to assist ASTTBC registrants understand, provide services and take professional responsibility within their field, and define a scope of practice. While not exhaustive, the Guide provides a context for the type of technical functions a registrant may be qualified to carry out. Independent professional services are permitted where allowed by law and as stipulated under this Guide, provided the services are consistent with the requirements of each project.

This Guide recognizes that registrants have attained a combination of education, training, experience, and occupational competency which enables them to apply known engineering technology and techniques to the solution of practical engineering technology problems of varying complexity within the ASTTBC definition of scope of practice, this Guide, and other applicable jurisdictional laws.

Registrants are required to comply with the ASTTBC Code of Ethics, any Guide to Professional Practice approved by Council, and any other applicable laws relating to the practice of biomedical engineering technology.

A registrant generally works within a team of professionals, which may include technologists, technicians, clinical engineers, doctors, nurses, respiratory therapists, information systems and supply chain personnel, trades-people, or other technical and administrative staff. The specific role of the registrant may differ significantly from one health care facility, equipment manufacturer, and research facility or service organization to another.

There is no restriction on who may 'manage' medical technology services, with the understanding that the appropriate registered professionals or authorized individuals are involved in carrying out the work.

A registrant may be the team leader of a project which is more complex than the scope of practice contemplated by this Guide when responsibility is assumed by another appropriately qualified and registered professional, whether a registrant of ASTTBC or of another professional association where required by law.

A registrant must be able to recognize any unique characteristics which, due to their complexity or other issues, are beyond their field of expertise and require the involvement of another qualified professional, whether a registrant of ASTTBC or another professional regulator such as the College of Physicians & Surgeons, BC College of Nursing Professionals and Engineers & Geoscientists BC. Consideration of such matters is always critical when the risk to the public is as inherent and direct as it is in this profession.

### **3. AREA OF PROFESSIONAL PRACTICE**

This Guide recognizes the services that ASTTBC registrants have traditionally carried out in the provision of biomedical engineering technology services. Under the authority of the ASTT Act and Regulations, and this Guide, a registrant may take responsibility for the carrying out of one or more of the services itemized in this Guide without requiring the direct supervision of another appropriately qualified professional, unless restricted in law.

### **4. BIOMEDICAL TECHNOLOGY SERVICES**

A member may be involved at all levels of the medical technology management process, including:

- Preventive maintenance of the medical technology including its repair and calibration;
- Monitoring and ongoing assessment to assure safe, effective and efficient use;
- Aspects of medical technology management including, but not limited to, "equipment end of life" and decommissioning of equipment due to age, serviceability, and cost of replacement.
- Aspects of medical technology management related to inventory management, measurement of medical clinical effectiveness.
- Initial needs assessment and pre-purchase evaluation of medical technology and supplies;
- Consultation on medical technology issues with clinicians and other members of the healthcare team including administration;
- Participation in the implementation of strategies in clinical areas; and
- Regular and frequent interaction with the clinical staff and patients to provide a safe, effective and comfortable medical technology environment.
- Developing standards of practice in the field of biomedical engineering

The duties of a registrant are often influenced by the unique relationships among technical and clinical areas that each organization might evolve. A registrant must have not only the technical skills but also the clinical knowledge necessary to understand the relationship between medical technology and its practical clinical application.

Typical activities may include but not be limited to:

- Project Management
- Management of technical staff
- Specification of maintenance and assessment programs for medical devices and associated technology.
- Technology Assessment
- Risk Management (includes incident investigations, hazard remediation, and other activities directed at ensuring that clinical areas remain safe for both patients and clinical staff)
- Installation and commissioning of medical devices
- Preventative Maintenance and Repairs
- Documentation of preventative maintenance, repair and service activity.
- Equipment and parts procurement for medical devices.
- Research and Development including:
  - Technical documentation as a function or support of research and development,
  - Electronic circuit design including firmware and software,
  - Development of mechanical, electro-mechanical, digital, or optical biomedical systems,
  - Configuration of subsystems to meet a particular clinical goal,
  - Participating in clinical research activities,
  - And working closely with clinical staff to develop or maintain patient solutions utilizing medical technology equipment.
  - Technical Consultation (EG with device manufacturers regarding design, maintenance or safety issues, or with clinical staff related to technology acquisitions, application, or quality assurance issues etc.)
- “Continued Education” (including manufacturer education and biomedical engineering technology related studies to ensure appropriate knowledge and skills are being used to provide safe and efficient medical device servicing).
- “User Education” (includes assisting with the initial and continued education for the technical and clinical staff on the safe and appropriate use of medical technology).

## 5. STAMPING

An ASTTBC registrant may affix their stamp, with signature and date, to all designs and reports in a manner consistent with the current ASTTBC policy on stamping and seals. Where such work is a part of a total service or product, the registrant will qualify the application of the stamp with respect to which portions of the work have been undertaken without supervision.

Where a registrant has completed work under direct supervision, the registrant will affix their stamp only for those aspects of the work completed by the registrant. The supervising professional will affix their stamp clearly noting their role as the professional providing the direct supervision and taking responsibility for the work.

## 6. PROFESSIONAL LIABILITY

ASTTBC registrants shall hold paramount the safety, health and welfare of the public, the protection of the environment and the promotion of health and safety within the workplace. Recognizing that errors and omissions do occur, registrants are encouraged to carry errors and omissions and general liability or other insurance appropriate to the circumstances. Registrants may access the ASTTBC group plan or seek third party coverage. The onus is always on the registrant to make the decision as to what best serves the interests of the public and protects the registrant. At all times the registrant will disclose to their client as to whether or not they have errors and omissions insurance and if insurance is in place, the limits of that insurance.

## 7. ASTT ACT & REGULATIONS

The *Applied Science Technologists and Technicians Act (ASTT Act)* regulating registrants of the Applied Science Technologists and Technicians of BC (ASTTBC) calls on the association, in the statement of 'Objects', to **“regulate standards of training and practice of and for its registrants and to protect the interests of the public”**.

The *ASTT Act* protects the titles Applied Science Technologist (AScT) and Certified Technician (CTech) and in this way informs the public as to those registered with, and governed by, ASTTBC.

The *ASTT Regulations* are pursuant to the *ASTT Act* and defines a registrant's scope of practice, discipline(s) in which registrants are registered, and references a Code of Ethics and Guides to Professional Practice.

Registrants are required to adhere to the ASTTBC Act and Regulations.

## 8. REFERENCES

The following documents are suggested as a range of reference material to guide professional practice:

- ASTT Act & Regulations and Code of Ethics
- Engineers & Geoscientists Act
- Canadian Electrical Code
- CMBES Clinical Engineering Standards (current edition)
- World Health Organization Maintenance Programme Overview (current edition)

- CSA Z32-09 – Electrical Safety and Essential Electrical Safety Systems in Health Care Facilities
- CEC C22.1-12 – Safety Standards for Electrical Installations
- IEC60601-1 – Medical Electrical Equipment
- ISO 13485 – Medical Devices – Quality Management Systems
- ISO 14971 – Medical Devices – Application of Risk Management to Medical Devices
- Other codes and standards appropriate to the circumstance
- Other ASTTBC Guides to Professional Practice in related practice areas.

## **9. LIMITATIONS**

Every effort has been made to ensure the accuracy and completeness of this Guide. Any error or omission does not relieve a registrant from making decisions and assuming professional responsibility appropriate to the circumstances.

### **Revision History:**

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