



Government of  
Northwest Territories

**IDENTIFICATION**

Department	Position Title	
Northwest Territories Health and Social Services Authority	Biomedical Engineering Technologist	
Position Number(s)	Community	Division/Region(s)
17-6313; 17-6316; 17-11392; 17-11393	Yellowknife	Informatics & Health Technology/ Headquarters

**PURPOSE OF THE POSITION**

The primary purpose of this position is to ensure that all biomedical assets are maintained and operated in a safe and optimal condition for the safe and accurate application and interpretation of patient care. This position repairs and maintains all Northwest Territories Health and Social Services Authority (NTHSSA) and other contracted health entities' biomedical assets, which include diagnostic, lifesaving/sustaining and therapeutic electronic patient care equipment. This position provides client support to meet operational needs such as user guidance, medical alerts, equipment management and emergency responses. This position works in accordance with standards and processes established by the Hospital, CSA, ECRI, manufacturers, Health Canada Accreditation, as well as with self-imposed standards of practice based on national Biomedical Engineering association's recommendations.

**SCOPE**

Stanton Territorial Hospital (Stanton) is an accredited facility, located in Yellowknife, Northwest Territories (NWT). Stanton is the referral center for approximately 43,000 NWT residents and 5,900 residents from the Kitikmeot Region of Nunavut. Stanton provides health care services to adults and children on an inpatient/outpatient and outreach bases in order to restore health with dignity. Stanton recognizes the health hazards associated with tobacco in the workplace, both to smokers and non-smokers alike. Therefore, Stanton maintains a tobacco free environment within the building and throughout the property.

Located at Stanton, the position provides expert professional engineering and system level support on over 3000 health technology devices for hospitals, health centers, long term care facilities, clinics, health stations and other government clients in the Northwest Territories and Nunavut;

- performing equipment preventative maintenance, repairs, incoming inspections and retirement,
- responding to Hospital emergency response codes,
- providing support and guidance for capital equipment selection and replacement, and
- Providing operational support for client operations.

Within the scope of services this position has authority to determine the most effective means to achieve approved end results to meet the clients' needs within predetermined budgets, standards, and processes. The overall value of the assets within this scope of services is approximately \$15,000,000.00. This position is directly responsible and accountable for maintaining patient care biomedical equipment in a safe and optimal condition, which has a direct impact on the safety and comfort of patients, staff and visitors. Biomedical equipment that is not maintained in a safe condition or presents inaccurate patient data can be life threatening.

This position is required to provide the full scope of responsibilities on medical equipment such as but not limited to dialysis, anesthesia, ventilation, defibrillation, infant warming, physiotherapy, infusion technology, physiological and vital signs monitoring, electrosurgical technology, single phase x-ray, small scale steam sterilizers, small scale lab analyzers and general minor medical (I.e. thermometers, pulse oximetry, oto/ophthalmoscopes, aspirators, laryngoscopes). This position is required to do first-call and inspection services on equipment such as but not limited to endoscopy systems, laparoscopy systems, audiology and ultrasound.

## **RESPONSIBILITIES**

### **1. Operations**

- By understanding a medical device's expected end results and through system condition checks and parameter calibrations, this position ensures the proper operation of all biomedical devices. This responsibility also includes instructing users on proper operational procedures for the safety of patients and staff, and to ensure accuracy of biomedical device applications. Operations include a coordination role on services that require a coordinated response from both internal and external service providers. This includes the planning and coordination of the regional service travel along with coordinating all non-scheduled services such as equipment repairs. The medical devices that this position must learn to operate represent substantial and continuous learning requirements. This position coordinates the distribution of

information and corrective actions pertaining to all medical alerts, which identify unsafe conditions and recommended corrective actions for biomedical devices.

## **2. Repairs**

- Through evaluation of failures, determination of cause, and coordination of required resources for corrective actions, this position coordinates and performs all repairs on biomedical devices to ensure an effective and quick return to operational status for all repairs on biomedical devices. The complexity and scope of technologies and devices that this position must work on requires skill development on a continual basis.

## **3. Preventative Maintenance**

- Through scheduled tasks and service standards this position coordinates and performs the preventive maintenance services on biomedical assets to ensure effective operation and longevity of the NTHSSA on contracted health entities biomedical assets. The Biomedical Technologist must have a good understanding of the operation and service requirements of each separate device to effectively perform preventive maintenance services on complex electronic and mechanical biomedical patient care devices and systems. The ability to modify, adapt and add to preventive maintenance procedures to meet unique environments is required.

## **4. Incoming Inspections/Retirements**

- Prior to any biomedical device being used for patient care it must undergo several condition checks and acceptance tests. These include electrical leakage checks and confirmation that the device is operating within acceptable parameters. These services are done to every new medical device that has been involved in travel or shipping. This position ensures that equipment being removed from service is safely disabled and positioned for disposal. The position will keep the inventory database up to date with and changes in the inventory.

## **5. Equipment Selection Services**

- This position provides guidance and advice for the selection and purchase of new biomedical devices as well as the replacement of existing biomedical devices. This position will identify all service requirements for new devices along with any specialized training requirements. This responsibility also includes ensuring the device is inspected and approved for patient use once it is received along with organizing all the required operational and service documentation.

## **6. Emergency Response**

- Through established processes this position plays a role in several Hospital emergency response plans, such as missing patient, missing infant and mass casualty situations.

## **7. Process Supports**

- This position is expected to coordinate and use several supporting processes for the effective provision of biomedical services such as purchasing, billing, inventory control, staff development, scheduling, contract management, interdepartmental communications and equipment databases along with the development and implementation of departmental goals and objectives. These processes are critical supports for the effective delivery of biomedical services and require constant quality management improvements.

## **8. Community Travel**

- This position is expected to travel to communities in the NWT and Nunavut to perform scheduled preventative maintenance work, incoming inspections and repairs. Most of the communities are fly-in only while a few are accessed by driving. There are over 30 scheduled trips annually ranging from one (1) day to two (2) weeks in duration. Emergency repair and off-cycle incoming inspection travel is done on an as and when basis. Each of the four (4) technologists is responsible for traveling for a quarter of the travel.

## **WORKING CONDITIONS**

### **Physical Demands**

There are frequent times when heavy lifting is required. The Hospital's physical size requires a substantial amount of movement on a frequent basis. This position is expected to work with professional tools on a frequent basis, some of which are very hazardous if not applied correctly. Due to the nature of biomedical devices and their application this position is expected to work in stressful situations on a frequent basis. This position routinely travels to several remote Northern Communities under harsh environmental conditions, which can be stressful.

### **Environmental Conditions**

This position is exposed to substantial electrical, chemical, mechanical, thermal and biomedical hazards on a frequent basis.

### **Sensory Demands**

This position routinely works with very complex biomedical equipment and systems. Operational condition checks, repairs, and maintenance services require concentrated levels of attention in order to discern conditional discrepancies, and safely conduct corrective actions.

### **Mental Demands**

This position is expected to work effectively within pressing client imposed deadlines to maintain biomedical device operations. Continuous attention to the devices expected end results along with considering the impact on the client's wellbeing will be stressful as this position does play the primary coordinating role in meeting those needs. Direct responsibility and accountability for the safety and comfort of the patient contributes additional stress for the incumbent. Frequent travel can be disruptive to family life.

### **KNOWLEDGE, SKILLS AND ABILITIES**

- Due to the complex and specific nature of several devices additional certified training is required. Travel for some of this training occurs at manufacturer's Training facilities located throughout Canada and out-of-country.
- The incumbent must have the ability to plan for and carry out personal and professional development in order to anticipate what personal skills will be necessary to meet the job requirements.
- Information seeking skills are required to ensure an adequate understanding of the technical and client issues that are routinely experienced so that effective actions can be carried out for the safety and comfort of patients, staff, and visitors.
- A high degree of analytical thinking ability is required to understand very complex technical issues by breaking them apart into smaller pieces, or tracing the situation in a step-by-step manner to ensure that proper corrective actions occur with an understanding of the impacts on the biomedical equipment, and clients.
- The ability to work within a service oriented department is required in order to focus effort on discovering and meeting client's needs, and at times must extend beyond what is expressed initially to discover the underlying needs as this position is expected to match supports for the client needs to the services and resources available.
- The ability to communicate effectively is required to interact with clients. This involves the ability to accurately listen, understand and respond appropriately and effectively with individuals and groups.
- The skills to use a wide range of computers, software, diagnostic equipment, and hand/power tools, along with skills in the application of maintenance materials and working in maintenance processes are required to effectively carry out technical repairs and services on complex electronic, electrical, and mechanical biomedical devices and systems.
- This position must have a working understanding of human physiology as well as facility environmental facility systems such as medical gas and electrical distribution systems in order to understand and correct problems effectively.

### **Typically, the above qualifications would be attained by:**

The knowledge required to perform the duties and responsibilities of this position is generally acquired through the successful completion of a 2 year certified Biomedical Technology program through a recognized technical institute. This education must be supplemented with

a minimum 2 years of experience in an acute care hospital or successful completion of one year of supervised Northwest Territories biomedical technologist training and experience. To meet minimum expectations an additional 6-month orientation is required to transfer that acquired knowledge to the specific biomedical devices, standards, and processes of the Northwest Territories Health and Social Services Authority and external partners.

Knowledge is maintained and increased in this position through continual training and exposure to new or specific technology, systems, equipment, and emergency responses.

### **ADDITIONAL REQUIREMENTS**

#### **Stanton Requirements**

Within Stanton all employees must acquire, within a reasonable time frame, and remain current with mandatory certifications such as but not limited to:

- Fire Training
- FIT Testing
- Infection Control
- Workplace Bullying/Respectful Workplace
- Workplace Hazardous Materials Information System

Mandatory certifications are reviewed annually.

This position requires an up-to-date immunization record.

#### **Position Security (check one)**

- ☐ No criminal records check required
- ☐ Position of Trust – criminal records check required
- ☒ Highly sensitive position – requires verification of identity and a criminal records check

#### **French language (check one if applies)**

- ☐ French required (must identify required level below)  
Level required for this Designated Position is:  
ORAL EXPRESSION AND COMPREHENSION  
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐  
READING COMPREHENSION:  
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐  
WRITING SKILLS:  
Basic (B) ☐ Intermediate (I) ☐ Advanced (A) ☐
- ☐ French preferred

#### **Aboriginal language: Choose a language**

- ☐ Required
- ☐ Preferred