

Job Class Profile: Cardiovascular Technologist II**Pay Level: LX-29 Point Band: 752-786**

Factor	Knowledge	Interpersonal Skills	Physical Effort	Concentration	Complexity	Accountability & Decision Making	Impact	Development and Leadership	Environmental Working Conditions	Total Points
Rating	6	4	4	8	4	3	3	2	6	
Points	280	67	25	38	120	65	62	43	64	764

JOB SUMMARY

The Cardiovascular Technologist II is responsible for operating highly specialized hemodynamic monitoring and other equipment during invasive diagnostic and interventional cardiac procedures such as cardiac catheterization, coronary angioplasty, cardiac biopsy, pacemaker and defibrillator implant, and electrophysiology/ablation procedures. The technologist assists the Cardiologist with the diagnosis and treatment of cardiac disorders.

Key and Periodic Activities

- Monitors and identifies potentially lethal cardiac arrhythmias and responds by performing cardiopulmonary resuscitation (CPR), defibrillation, or pacing techniques.
- Performs electrical stimulation in various chambers of the heart using a multiprogrammable intracardiac stimulator, or implements radiofrequency ablation therapy. These activities are performed under the direction of a Cardiologist during Electrophysiology Studies (EPS).
- Selects pacemaker and programs the pacemaker to operate once it is implanted into the patient's chest. Tests the pacemaker leads, which are inside the heart, to ensure they are functioning properly. Troubleshoots any problems with the pacemaker post implant.
- Performs pacing thresholds and reports results to the Cardiologist during implantable cardioverter defibrillator (ICD) procedures; monitors patient's cardiac rhythm; and co-ordinates rescue shocks during induction of ventricular fibrillation (VF) induced to test the ICD device.
- Monitors hemodynamic and electrocardiograms (EKG) during all procedures and notifies the Cardiologist of changes in the patient's hemodynamic status.
- Analyzes blood samples using a blood gas machine; enters data into a hemodynamic computer system and performs computerized or manual calculations to determine valve areas, shunt placement, pressure gradients, etc.
- Prepares and educates the patient for diagnostic and interventional procedures, connects the patient to cardiac and hemodynamic monitors and EKG leads. Assists with flushing lines, and level and zero transducers.
- Enters and records the patient's demographic, medical data, procedure information and results into the patient database system, and then prepares the final report of the procedures.

Key and Periodic Activities

- Performs quality assurance testing on equipment and machines such as activated clotting time machines, defibrillators, temporary pacemakers, and hemodynamic monitoring systems.
- Tracks and orders all inventory for pacemaker, ICD implants, and EPS. Restocks supplies for procedures.
- Reviews and monitors cases in the hemodynamic monitoring system and data entered into the national statistical database (APPROACH).
- Configures studies and reviews information in the hemodynamic computer monitoring system for procedures such as cardiac catheterizations, angioplasties, and EPS.
- Checks and replaces, if required, the temporary pacemaker batteries, analyzer, and transducer.

SKILL

Knowledge

General and Specific Knowledge:

- Specialized areas (i.e. Electrophysiology, Intravascular Ultrasound, and Fractional Flow Reserve).
- Usage of cardiovascular equipment.
- Testing procedures and guidelines.

Formal Education and/or Certification(s):

- Minimum: 2 - 3 Year (post-secondary) Diploma in Cardiovascular Technology.
- Completion of a course in Electrophysiology.
- Entrance to program requires the minimum of a 2 Year Diploma or Degree in Nursing, or in a Allied Health Discipline.
- BLS and Defibrillation Certifications (annually).
- Advanced Cardiac Life Support (ACLS) (biannually).
- Required to attend regular inservices on technical equipment, fire response training, and confidentiality seminars.

Years of Experience:

- Minimum: 3-4 years of experience.

Competencies:

- Technical and clinical knowledge.
- Operate highly technical medical equipment.
- Patient care and focus.
- Ability to multitask and work independently.
- Computer skills.

Interpersonal Skills

- Interpersonal skills are used to listen, ask questions, or provide information, which is often complex to patients, physicians (i.e. Cardiologists) and other professionals (i.e. Diagnostic

Imaging Technologists and Nurses) during procedures; to provide care/comfort/nurturing to patients; to listen to patient's information when taking a patient medical, and to deal with people who are upset or angry. Interpersonal skills are used weekly to coach, mentor, and instruct/train staff and students.

- Communications occur with patients, employees, supervisor and students in the immediate work area, department and outside the department, but within the organization. There is also contact with students, sales representatives, and professional advisors.

EFFORT

Physical Effort

- The demands of the job occasionally result in considerable fatigue, requiring periods of rest, and a need for strength and endurance.
- Constantly lifts or carries supplies less than 10 lbs. Occasionally lifts/moves or transports patients over 50 lbs. from a stretcher to the procedure table.
- Siting is required on a constant basis to monitor patients during procedures where there is limited ability to move about; however, occasionally activities involve walking and standing. There is an occasional requirement to physically handle patients in crisis situations to perform CPR, defibrillation, and temporary pacemaker implants, work in awkward or cramped positions such as crawling underneath stretchers or tables to reposition or fix ECG leads, or to perform CPR.
- Occasionally uses fine finger precision work to position knobs and dials on machines such as intracardiac stimulators to pace the patient's heart, and shock them from lethal cardiac rhythms, use gross motor skills and equipment requiring rapid physical movement and reflexes. When assisting with procedures constantly uses machinery (intracardiac stimulator) that requires very controlled movement.

Concentration

- **Visual** concentration is required to monitor EKG status of patients, determine changes to heart rate, check vitals, ECG and blood pressure, pressure tracing levels, and any other hemodynamic changes that may need treatment.
- **Auditory** concentration is required when performing procedures to listen to communications between all team members, determine and document the procedure such as the dose and drugs administered, monitor hemodynamic changes, and to determine pacing protocols. Skills are also used to listen and follow the flow of the procedures, and to listen to physician directions such as when to stop and perform radiofrequency ablation therapy.
- Sensory demands such as **touch** are required to prepare patients for procedures, to attach electrodes and other devices/equipment to patients, and perform CPR and defibrillation.
- The **repetitive** activities requiring **alertness** are related to performing similar procedures on various patients
- **Lack of control over the work pace** occurs due to emergencies, constant interruptions (personnel responding to codes, phone calls, overhead pages for physicians, equipment or technical problems), and the demands for the service. There are critical **time pressures** especially in emergency situations to listen, answer questions, and perform the plan of care

as indicated by the physician.

- **Exact results and precision and a higher level of attentiveness and alertness** are required when analyzing blood samples and when doing valve flow/area and shunt determinations calculations.

Complexity

- Regularly tasks or activities are repetitive, well-defined; however they are occasionally different, diverse, but allow for the use of similar skills and knowledge.
- Problems regularly have obvious solutions, but occasionally have a limited number of guidelines or procedures. Tasks are constantly highly technical and can normally be solved in a team setting.
- A typical challenging problem is when performing Electrophysiology Studies where cables and catheters show no or poor signals. The technologist is required to troubleshoot the problem that may result in the replacement of catheters, cables, reconfiguring the computer, or calling technical support for assistance.
- There are guidelines that can be followed to address some issues and advice from Cardiologists, other technologists, or healthcare professionals (i.e. nurse, diagnostic imaging technologist), and manuals available. Other resources are policies and procedures, reference materials, biomedical support personnel, and representatives from vendor companies.

RESPONSIBILITY

Accountability and Decision-Making

- Work tasks are highly monitored and controlled.
- Activities are performed under the direction of a Cardiologist in a team setting. Decisions can be made regarding the ordering of supplies for the Electrophysiology Laboratory and the amount of inventory to keep in stock.
- Supervisory approval is required for the purchase of new equipment or products.
- Makes pacemaker recommendations, and when discussing patients with other team members makes decisions regarding the amount of information to disclose. There is a high level of discretion and judgement used when performing diagnostic testing and in relaying information and results to the Cardiologist.
- Provides physicians and the healthcare team information related to diagnostic results, and provides information and advice to students and others regarding procedures.

Impact

- Work can negatively or positively impact the quality of care provided to the patient. When procedures are performed accurately, a diagnosis can be made for the patient causing a positive impact on health and safety. Negative impact on patients, health and safety and the corporate image could be extreme in the event of an error or mistake requiring immediate action.
- Work completed has an impact on patients, within the immediate work area, department, and within and outside the organization.
- The resources that are impacted are equipment (for maintenance), information (if it is not

collected properly), finances (such as the supplies and drugs used), material resources (to ensure adequate supplies), health and safety, and corporate image.

- Examples of errors are making incorrect interpretations of patient hemodynamic values, and not checking pacemaker batteries or defibrillator. Work tasks are highly monitored and controlled. Consequences or impacts of errors are patients having to undergo unnecessary surgery, treatment, or death; however, these are mitigated as the work tasks are followed under the direction of a Cardiologist. There are checks and balances in place such as quality controls on machines, and errors are immediately identified at the time of the incident.

Development and Leadership of Others

- Not responsible for the supervision of staff.
- Provides on-the-job advice/guidance, job direction, and orientation to new staff, acts as a technical mentor or advisor on equipment or new products. Trains others, assists with the ICD support group, reviews the work of coworkers, provides education support and training to cardiovascular technology students, including ensuring the training competencies are met and completed.

WORKING CONDITIONS

Environmental Working Conditions

- When assisting with procedures, there is a requirement to wear lead aprons covering neck to knees, goggles/glasses, lead neck protector, gloves, hat, and mask.
- There is limited likelihood receiving minor injuries or illnesses, fractures, and partial or full disability when performing activities.
- Constantly exposed to bodily fluids, waste, with regular exposure to glare from the computer/equipment monitors/screens, limited ventilation and lighting (lights are turned down during some procedures), infectious diseases (blood splatter), and radiation. Occasionally, there is exposure to unusual distracting noise, wet or slippery floors, electrical shocks, awkward or confining workspaces, and sharp objects (needle sticks).