Nell Hodgson Woodruff School of Nursing
Emory University

CARDIOVASCULAR PERFUSION
STUDENT HANDBOOK

2025-2026

Material contained in this handbook is supplemental to the Nell Hodgson Woodruff School of Nursing Catalog & Student Handbook

Table of Contents

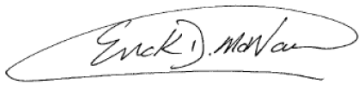
Dear Student,

Welcome to the Master in Cardiovascular Perfusion Science program at the Nell Hodgson Woodruff School of Nursing (NHWSN) at Emory University. The Cardiovascular Perfusion Student Handbook is specific to the perfusion program and provides an overview of program milestones and processes for academic and clinical progression and graduation. In addition, relevant forms that can be downloaded are included. Each student is responsible for reviewing and adhering to the academic and clinical requirements for this program. For NHWSN related policies and procedures, the student should refer to the 2025-2026 Student Handbook located on the main School of Nursing website.

Due to the dynamic nature of this program, it is likely program changes will occur. The program reserves the right to revise Handbook information at its discretion and to make reasonable changes in requirements to enhance the program or improve the quality of education. Changes will be communicated verbally and electronically to students.

If you have any questions regarding the information in the program handbook, please contact me at erick.mcnair@emory.edu.

Sincerely,



Erick D. McNair, PhD, MSc, CCP, FICA
Associate Clinical Professor
Program Director

HISTORY OF EMORY CARDIOVASCULAR PERFUSION PROGRAM

The Master in Cardiovascular Perfusion Science program at the Nell Hodgson Woodruff School of Nursing (NHWSN) at Emory University was an initiative of Dr. Linda McCauley, NHWSN Dean to address the need for perfusion services identified by our health care partners and stakeholders. Committed to the National Academy of Medicine (NAM) vision for improving access to high quality, affordable care for citizens of Georgia and beyond, and dedicated to building a model for team-based care, program development began in the spring of 2021 with the perfusion planning committee. In 2022, the application was submitted to the Emory Academic Review Committee and Board of Trustees. The Emory Board of Trustees approved the Master in Cardiovascular Perfusion program in November 2022 and an application was submitted to SACSCOC in November 2022. SACSCOC approved the program in April 2023. The inaugural cohort began in Fall 2023.

OVERVIEW

The Master in Cardiovascular Perfusion Science program is a full-time, onsite, 5-semester continuous enrollment program. On completing the 65.5-semester hours and all other program requirements, the student will earn a Master of Perfusion Science degree. Clinical rotations begin in semester 1 with an observational experience and progressive clinical expectations in subsequent clinical rotations toward competence cardiovascular perfusion practice. Prior to active clinical engagement, students will participate in simulated learning experiences and competency assessments. During the program, students will have a minimum of 990 direct clinical hours of experience and 270 hours of simulation-based learning.

Students will complete and document a minimum of 75 cardiopulmonary bypass cases as described below to meet eligibility criteria for application to take the certification examination. Five of the 75 Primary Clinical Perfusion Activities (PCPA) must qualify as 3P – ECMO or 6P -VAD cases per Table A of the American Board of Cardiovascular Perfusion (ABCP) Booklet of Information (BOI) and the remaining 70 (or more) PCPA must qualify as 1P – primary cardiopulmonary bypass (CPB). Table A is provided below.

Definitions of Qualifying Primary Clinical Perfusion Activities:

1. 1P – Cardiopulmonary Bypass: The primary operator of the heart-lung machine, used during cardiac surgery and other surgeries that require extracorporeal circulation, used to manage the patient's physiological status.
2. 3P – ECMO: the primary operator of Extra-Corporeal Membrane Oxygenation (ECMO) circuit that provides life support for respiratory and/or cardiac failure. The CCP candidate must be documented at the institution as a member of the patient care team for that period and a physician name must accompany the case in the Clinical Activity Report.
3. 6P – VAD: primary operator of the Ventricular Assist Device (VAD) that provides cardiac support for the failing heart.

A minimum of 10 clinical pediatric cases requiring cardiopulmonary bypass must be observed or performed for the certification process. Pediatric cases performed may count toward the 75 minimum cardiopulmonary bypass case requirements; observational pediatric cases do not count toward the 75 minimum cardiopulmonary bypass case requirements.

Table A – Primary Clinical Perfusion Activities (PCPA)

Primary Clinical Perfusion Activities (PCPA)	Clinical Definition	Core Elements
1P Cardiopulmonary Bypass (CPB), Primary	A Certified Clinical Perfusionist (CCP) who is the primary operator of the heart-lung machine, used during cardiac surgery and other surgeries that require extracorporeal circulation, used to manage the patient's physiological status.	Blood pump, reservoir, heat exchanger, oxygenator, extracorporeal circuit used accordingly with hemodynamic/lab value monitoring. Multiple pump runs per one OR visit equal 1 primary case credit.
2P Instructor CPB Bypass, Primary **(Not eligible for PBSE or CAPE examination cases.)**	A Certified Clinical Perfusionist (CCP) who serves as a clinical instructor to a student enrolled in an accredited perfusion program during primary clinical perfusion activities that require extracorporeal circulation, used to manage the patient's physiological status.	Blood pump, reservoir, heat exchanger, oxygenator, extracorporeal circuit used accordingly with hemodynamic/ lab value monitoring. Primary clinical perfusion activities (PCPA) performed as clinical instructor in an accredited program are considered a primary perfusion activity and will receive full case credit. During clinical instruction in which the student is operating extracorporeal circulation equipment, there must be direct one-to-one supervision by the clinical instructor. Students may also receive credit toward certification eligibility for the same case.
3P Extra-Corporeal Membrane Oxygenation (ECMO), Primary	A Certified Clinical Perfusionist (CCP) who is the primary operator of Extra-Corporeal Membrane Oxygenation (ECMO) circuit that provides life support for respiratory and/or cardiac failure. The CCP must be documented at the institution as a member of the patient care team for that period and a physician name must accompany the case in the Clinical Activity Report.	Extracorporeal circuit, oxygenator, heat exchanger used accordingly with hemodynamic/lab value monitoring. For each ECMO case, one case credit per 24 hours will be awarded for initiating and bedside managing ECMO (4-hour minimum) or bedside managing (6-hour minimum). No simultaneous credit will be awarded for managing multiple ECMO patients in this time period.

4P Normothermic Regional Perfusion (NRP), Ex Vivo Organ Perfusion, Primary **(Not eligible for PBSE examination cases.)**	A Certified Clinical Perfusionist (CCP) who is the primary operator of an (1) extracorporeal device/system used during organ recovery that require extracorporeal circulation, used to manage the patient's physiological status or of an (2) extracorporeal device, including an oxygenator/de-oxygenator and pump, used to manage the physiologic state of isolated and separated human organs from the body, for potential transplant opportunities.	Reservoir, blood pump, heat exchanger, oxygenator, extracorporeal circuit used accordingly with hemodynamic, temperature, and lab value monitoring. No simultaneous credit will be awarded for managing multiple organs.
5P Veno-Venous or Left Heart Bypass, Isolated Limb, Primary **(Not eligible for PBSE examination cases.)**	A Certified Clinical Perfusionist (CCP) who is the primary operator of an extracorporeal device used to perfuse specific vascular regions within the circulatory system or recirculate venous blood for purposes such as clot/tissue removal. the primary operator of an extracorporeal device used to deliver anticancer drugs directly to an arm, leg, or organ and manages the patient's physiological status.	Blood pump, extracorporeal circuit used accordingly with hemodynamic/lab value monitoring.
6P Ventricular Assist Device (VAD), Primary	A Certified Clinical Perfusionist (CCP) who is the primary operator of the Ventricular Assist Device (VAD) that provides cardiac support for the failing heart.	For each VAD case, one case credit per 24 hours will be awarded for initiating and managing VAD or bedside managing (6-hour minimum). No simultaneous credit will be awarded for managing multiple VAD patients in this time period.

Updated 01/22/2024

Students will be prepared for entry to the operating room with assessment of competencies for simulated critical incidents prior to active participation in clinical experiences. A modification of Benner's Novice to Expert Model (Benner 1984) is used to define achievement of competence. Based on the work of Dreyfus, Benner's model emphasizes that experiential learning leads to progressive advancement of clinical skills over time. Students in the program advance from beginning, intermediate, to competent student clinicians. As students graduate and enter cardiovascular perfusion practice, their clinical skills and clinical acumen continues to grow from a proficient to ultimately an expert clinician.

Benner Novice to Expert Adapted to the Clinical Perfusionist	
Novice	A novice is a beginner with no experience. They are taught general rules to help perform tasks, and their rule-governed behavior is limited and inflexible. In other words, they are told what to do and simply follow instruction.
Advanced Beginner	The advanced beginner shows acceptable performance, and has gained prior experience in actual situations. This helps the perfusionist recognize recurring meaningful components so that principles, based on those experiences, begin to formulate in order to guide actions.
Competent	A competent perfusionist has two years of clinical training in perfusion services including CPB, ECMO, and special techniques/equipment. Graduates are prepared upon certification to provide perfusion services in routine situations. With additional clinical practice and continuing education the perfusionist will gain confidence and competence with more complex cases and will achieve greater efficiency and organization.
Proficient	A proficient perfusionist perceives and understands situations holistically, which improves decision-making. The perfusionist learns from experiences what to expect in certain situations, as well as how to modify plans as needed.
Expert	Expert perfusionists no longer rely on principles, rules, or guidelines to connect situations and determine actions. They have a deeper background of experience and an intuitive grasp of clinical situations. Their performances are fluid, flexible, and highly-proficient.

The Master in Cardiovascular Perfusion Science program curriculum was developed using the 2019 AC-PE Approved Cardiovascular Perfusion Curriculum for specialty area content. It has a focus on master's level program requirements for professional development, research and continuous quality improvement, research project development and dissemination, and outcomes for the graduate of the program.

ACCREDITATION

The Master in Cardiovascular Perfusion Science program was developed with consideration of the standards for accreditation established by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). The CAAHEP accreditation site visit occurred on November 14-15, 2024. Initial accreditation status was conferred March 21, 2025, and effective through 2030.

PROGRAM MISSION

The Master in Cardiovascular Perfusion Science program is aligned with the Emory University mission to "create, preserve, teach, and apply knowledge in the service of humanity" and the NHWSN mission "to transform nursing, health, and systems of healthcare within the local, national, and global community through collaboration and social responsibility."

PROGRAM OUTCOMES (Adopted 2/7/2022)

The knowledge for perfusion practice threads through all areas of healthcare science. The integration, translation, and application of perfusionist knowledge blended with the knowledge from other disciplines as well as the liberal arts and sciences serve as a foundation for professional practice and the basis for clinical judgement. The NHWSN values provide the fundamental tenets upon which the program is built and are integral to guiding graduates in aligning plans of care that reflect the impact of the social determinants of health (SDOH) on individual and population care outcomes. SDOH are defined as cultural, social, environmental, and political influences, that affect individuals across their lifespan. SDOH are key to developing and optimizing person-

centered and population-focused plans of care. The systemic implications of these determinants are explicitly embedded into the curriculum and program outcomes.

Upon completion of this program, graduates will be prepared to function as a competent entry level practitioners in the cognitive (knowledge), psychomotor (skills) and affective (behavior) learning domains that include the following educational outcomes. This program will prepare the graduate of the perfusion education program to function as a competent entry-level practitioner in the cognitive (knowledge), psychomotor (skills) and affective (behavior) learning domains that include the following educational outcomes, upon completion:

Definition reflects NHWSN values	Perfusion Education Outcomes
Person-Centered Care: "Focuses on the individual within multiple complicated contexts, including family and/or important others. Person-centered care is holistic, just, respectful, compassionate, coordinated, evidence-based and developmentally appropriate." The influence of SDOH on person-centered and more broadly, population-focused care, recognizes the individual residing within the context of groups and population influences is an essential element in person-centered care.	Use evidence-based practices to plan, deliver, and evaluate person-centered perfusion care. Plans include evidence-based interventions with consideration of the influence of SDOH and their impact on wellness, prevention, chronic disease, restorative care, palliative care. and quality of life.
Scholarship and Evidence-based Practice: The scholarship of discovery includes observation, analysis, synthesis, application, and dissemination of findings resulting in a new understanding of phenomena. Emanating from a spirit of inquiry and a readiness for critical examination, scholarship of evidence-based practice is the translation of best evidence, clinical expertise, and personal preference and values into the process of person-centered care to improve health and transform health care.	Demonstrate knowledge, application, and integration of basic science concepts and best evidence in perfusion practice to provide person-centered and population-focused care. Critique research methodologies and apply evidence-based practice strategies to enhance patient outcomes. Participate in initiatives to improve health outcomes of specific populations across spheres of care with an emphasis on diversity, equity, inclusion, and ethics. Lead evaluation and implementation of evidence and quality improvement to guide best practice and optimize outcomes. Contribute to the body of evidence of perfusion science via dissemination of scholarly work.
Interprofessional Partnerships: The	Demonstrate appreciation for team-based

intentional collaboration within and across professions and with care team members, individuals, families, and communities and other stakeholders to optimize care, enhance the healthcare experience, and strengthen outcomes.	care by respecting team member perspectives, varied roles/responsibilities, and their impact on team performance and care outcomes. Utilize evidence-based strategies for effective team-based communication and function considering personal bias and diversity, equity, and inclusion. Explore the facets of team dynamics and strategies to facilitate working effectively as a high performing, care-oriented team. Advocate for or develop strategies and policies to maximize cost effective and equitable access to quality healthcare.
Quality Improvement and Safety: Principles of safety and improvement science influence care delivery and contribute to a culture of safety for patients, providers, and workplace environment. Healthcare providers implement knowledge of systems and evidence-based practice to work effectively across the continuum of care, incorporating consideration of cost effectiveness of care. Coordination of resources is necessary to provide safe, quality, and equitable care to diverse populations.	Apply principles of safety and improvement science to promote equitable, quality, and cost-effective healthcare delivery on an individual and organizational level. Implement best practices in safety and improvement science to optimize clinical, operational, and team-based care delivery at the individual, organizational and systems levels to improve health outcomes.
Informatics and Healthcare Technologies: Information and communication technologies and informatics processes are used to provide care, gather data, form information to drive decision making, and support professionals as they expand knowledge and wisdom for practice. Informatics processes and technologies are used to manage and improve the delivery of safe, high-quality, and efficient healthcare services in accordance with best practice and professional and regulatory standards.	Analyze, translate, and incorporate individual, organizational, external data sources and applications to inform decision making and develop evidence-based plans of care. Apply principles and skills in biomedical engineering, laboratory analysis, and medical assistance in the use of technology, equipment, and techniques in cardiopulmonary bypass, ECMO, and use of special devices. Utilize communication and information technologies, with consideration for professional and regulatory standards to deliver safe, high-quality, and efficient healthcare services.
Professionalism: Formation and cultivation of	Execute perfusion care with accountability for

a sustainable professional identity, accountability, perspective, collaborative disposition, and comportment that reflects perfusionist's characteristics, and values	ethical and participatory approaches to care delivery with respect for diversity, equity, and inclusion of all members of society. Comply with relevant laws, policies, and regulations. Advocate for change in policies and practice that promote social justice and health equity.
Personal, Professional, and Leadership Development: Participation in activities and self-reflection that foster personal health, resilience, and well-being, and career-long learning, and support the acquisition of practice expertise and assertion of leadership.	Develop personal health behaviors, effective interpersonal communication, and conflict management skills that support effective working relationships, professional resilience, and well-being. Demonstrate leadership in patient centered care through advocacy and team collaboration. Participate in lifelong learning for professional development and leadership.
Perfusionist Practice Perfusionist practice is the autonomous, collaborative, and systematic care of people to optimize health. The perfusionist has a defined scope of practice as determined by the certification board and within their state of practice.	Understand the historical development of extracorporeal technology in the context of the perfusionist's scope of practice in the management of patients requiring perfusion services. Acquire clinical competence in planning, organizing, and delivering high quality perfusion care to patients across the lifespan and health continuum. Practice within the scope of standards and guidelines defined by the American Society of Extracorporeal Technology (AmSECT).

The mission of the Master in Cardiovascular Perfusion Science program is to prepare highly effective and competent perfusionists able to:

- implement established and emerging principles and techniques of perfusion practice to provide safe competent care to patients.
- demonstrate accountability for ethical and team-based approaches to care delivery with an understanding of the influences of the social determinants of health for high quality care for all.
- become life-long learners, preceptors, educators, and leaders capable of research in the field of perfusion science.

12 REQUIRED UNITS OF LEARNING:
Standards and guidelines for perfusion programs

The 12 required units of learning align with the standards and guidelines for perfusion education. All 12 required units of learning are integrated into the program and are added to the course syllabi to facilitate mapping of the curriculum and focus students on key areas of learning within each course.

Knowledge of the Basic Sciences

1. Demonstrate knowledge and application of basic science concepts.

Skills and Experiences

2. Apply concepts and skills to effectively use the technology, equipment, and techniques used in cardiopulmonary bypass.
3. Demonstrate proficiency in heart assist devices and blood conservation techniques.
4. Identify and apply principles of laboratory analysis.
5. Apply skills in biomedical engineering.
6. Administer pharmaceutical agents during the conduct of cardiopulmonary bypass.

Patient-Centered Care

7. Demonstrate skill in managing patient safety when providing perfusion services.
8. Demonstrate knowledge of continuous quality assurance and continuous quality improvement for the perfusionist.
9. Demonstrate an understanding of bioethics.
10. Understand the historical development of extracorporeal technology.
11. Apply research methods and evidence-based practice strategies to enhance patient outcomes.
12. Demonstrate an understanding of business practice and regulatory agencies.
13. Apply knowledge of emergency preparedness.

PERFUSIONIST SCOPE OF PRACTICE
The American Society of Extracorporeal Technology provides a Perfusion Scope of Practice document. This statement does not supersede existing state licensure laws or affect the interpretation or implementation of such laws and is a model for development or modifications of licensure laws. The scope of practice of the Clinical Perfusionist Professional includes those procedures, acts and processes permitted by law, for which the individual has received education and clinical experience, and in which competency has been demonstrated.

1.1.0 Extracorporeal Support
1.1.1. Cardiopulmonary bypass for Adult, Pediatric, and Neonatal Patients.
1.1.2. Cardiopulmonary bypass for congenital and acquired cardiovascular disorders.
1.1.3. Extracorporeal circulatory support for renal, neurological, hepatic and vascular surgery.
1.1.4. Extracorporeal resuscitation.
1.1.5. Extracorporeal circulation for long term support of failing respiratory and/or cardiac function.
1.2. Associated Extracorporeal Support Functions
1.2.1. Myocardial protection.
1.2.2. Hemofiltration/hemodialysis.
1.2.3. Anticoagulation and hemostasis monitoring, analysis, and intervention.
1.2.4. Thermal regulation.
1.2.5. Blood gas and blood chemistry monitoring, analysis, and intervention.
1.2.6. Physiological monitoring, analysis, and intervention.
1.2.7. Administration of blood components, pharmaceuticals, and anesthetic agents

2.1. Heart Failure Therapy and Support
2.1.1. Ventricular Assist Device management
2.1.2. Intra-aortic Balloon Counterpulsation
2.1.3. Temporary Pacemaker management
2.1.4. External counterpulsation
2.1.5. Transportation of Extracorporeal Supported Patients
2.1.6. Hemofiltration (i.e., “ultrafiltration”)
2.1.7. Periodic flow augmentation therapy
3.1. Blood Management
3.1.1. Autotransfusion
3.1.2. Platelet Gel Production
3.1.3. Non-Differentiated Progenitor Cell Harvest
3.1.4. Acute Normovolemic Hemodilution
3.1.5. Phlebotomy
3.1.6. Hemostasis monitoring and analysis
4.1. Other Clinical
4.1.1. Isolated Limb/Organ perfusion
4.1.2. Isolated limb/organ delivery of chemotherapeutics, progenitor cells, gene therapy vectors, etc.
4.1.3. Organ Procurement
4.1.4. Thermogenic lavage
4.1.5. Organ Preservation
4.1.6. Dialysis
4.1.7. Surgical assistance
4.1.8. Electrophysiological analysis
4.1.9. Therapeutic Hyperthermia
4.1.10. Therapeutic Hypothermia
4.1.11. Intravascular membrane oxygenation
5.1. Non-Clinical Responsibilities
5.1.1. Documentation of duties via the official medical record
5.1.2. Education, including the establishment and management of educational programs for new and current clinical perfusionists, other healthcare providers, and consumers.
5.1.3. Administration, including managing all aspects – technical, fiscal, workflow, and human resources – of Clinical Perfusion operations.
5.1.4. Quality Control and Assurance
5.1.5. Regulatory Compliance
5.1.6. Competency/Performance Evaluation
6.1. Professional Performance
6.1.1. Obtains and maintains appropriate professional credentials.
6.1.2. Works in partnership with other health care professionals to provide the best medical care possible for all patients.
6.1.3. Adheres to the standards, policies, and procedures adopted by the profession and regulated by law.
6.1.4. Stays current with required continuing medical education (CME) to stay abreast of changes in the field of Extracorporeal technology and to maintain professional credentials.
6.1.5. Participates in continuing education activities through professional organizations, to enhance. knowledge, skills and performance.
6.1.6. Adheres to the accepted professional ethical standards as defined by the Code of Ethics.

6.1.7. Acts as a patient advocate supporting patient rights.
6.1.8. Design, coordination, and implementation of original investigation.
6.1.9. Critical evaluation of published research.

CARDIOVASCULAR PERFUSION PROGRAM

Perfusionist practice requires a solid foundation in the biological, physiological, pharmacological, sociological, psychological, and perfusion sciences. Student learning will be steeped in the cognitive (knowledge), psychomotor (skills) and affective (behavior) domains. Case based scenarios and simulation-based learning experiences will provide opportunities to develop clinical judgment and decision making. Lifelong learning is essential as new technologies and practices emerge in this dynamic field. Classroom, simulation, and clinical experiences provide students with the knowledge and skills to provide perfusion care to patients across the lifespan in all risk categories.

Courses are taught by NHWSN faculty and dedicated Certified Clinical Perfusionists within the health care agencies. Experts in related fields such as cardiovascular and transplantation serve as guest lecturers and emphasize the team-based nature of perfusion practice.

The Master in Cardiovascular Perfusion Science program is designed to meet or exceed the standards and recommendations of the Perfusion Education curriculum (AC-PE). Successful completion of all program requirements leads to a Master of Science degree. Graduates may take the certifying examination of the American Board of Cardiovascular Perfusion (ABCP) after meeting eligibility criteria.

PROGRAM CURRICULUM

Curriculum Design

The Master in Cardiovascular Perfusion Science program is a 22-month (5 semester) program consisting of 65.5 credits. The Curriculum Plan of Study below depicts courses/credits in this program. All perfusion program courses are onsite with practicums at the clinical facilities located within and outside of Georgia.

	Master in Cardiovascular Perfusion Science Program Full-time Program of Study			
	Course	**Credits**	**Simulation Hours**	**Clinical Hours**
	Semester 1 (Fall)			
CVP 565	Clinical Monitoring	4	15	
CVP 566	Foundations of Perfusion Technology & Techniques	4.5	60	30
CVP 562	Pharmacology I: Clinical Perfusionists	2		
CVP 567	Pathophysiology I	3		
CVP 569	Professional Role and Safety in Perfusion Management	3		
	Semester Credit Hour Total	**16.5**	**75**	**30**
	Semester 2 (Spring)			
CVP 585	Perfusion Technology & Techniques I	4	60	
CVP 583	Clinical Application I	3	45	90
CVP 584	Pathophysiology II	3		
CVP 586	Pharmacology II: Clinical Perfusionists	3		
CVP 587	Research & Evidence-based Practice	2		
	Semester Credit Hour Total	**15**	**105**	**90**
	Semester 3 (Summer)			
CVP 612	Perfusion Technology & Techniques II	4	60	
CVP 613	Research Project: Planning	2		
CVP 610	Bioethics	2		
CVP 611	Clinical Application II	5		240
	Semester Credit Hour Total	**13**	**60**	**240**
	Semester 4 (Fall)			
CVP 620	Neonate, Infant & Pediatric Perfusion	3	30	
CVP 621	Research Project: Implementation*	2		120
CVP 619	Health Policy & Law for the Clinical Perfusionist	2		
CVP 618	Clinical Application III	5		270
	Semester Credit Hour Total	**12**	**30**	**270**
	Semester 5 (Spring)			
CVP 626	Clinical Application IV	6		360
CVP 627	Perfusion Technology & Techniques III	1		
CVP 628	Comprehensive Review: Clinical Perfusionist	1		
CVP 622	Research Project: Dissemination	1		
	Semester Credit Hour Total	**9**		**360**
	Total Credit Hours	**65.5**	**270**	**990**

Course Descriptions

CVP 562 Pharmacology I: Clinical Perfusionists (2)

This course examines basic principles of mathematics and biochemistry related to pharmaceuticals used in extracorporeal circulation. The understanding of pharmacodynamics, pharmacokinetics, antiarrhythmics, vasopressors, inotropes, vasodilators, and anticoagulants will be related to the conduct of perfusion.

CVP 565 Clinical Monitoring (4)

This course introduces students to laboratory, hemodynamic and diagnostic modalities used in physiological monitoring of critically ill patients. Case studies will be used to apply knowledge of monitoring modalities for clinical decision making.

CVP 566 Foundations of Perfusion Technology & Techniques (4.5)

This course provides a historical overview of extracorporeal technology and principles of design and safety features of equipment and laboratory components. Emphasis is on simulated experiences with the varied components and extracorporeal techniques used to manage the total perfusion process.

CVP 567 Pathophysiology I (3)

This course focuses on the physiology and pathology of the adult, neonate, infant and pediatric cardiovascular and hematological systems. Surgical approaches to cardiovascular repair will be emphasized within the context of technological management of CPB and life sustaining support.

CVP 569 Professional role and Safety in Perfusion Management (3)

Patient safety will be emphasized including operating room safety, biomedical electrical safety, blood and fluid exposure, emergency preparedness, and safety reporting. Simulated experiences within an interprofessional team will be provided.

CVP 583 Clinical Application I (3)

Students begin by participating in observational experiences in the operating room, cardiovascular catheterization lab, and other critical care environments involving CPB, ECMO, and other support devices, and then transition to engage in simulated supervised practice. Beginner level.

CVP 584 Pathophysiology II (3)

This course focuses on the physiology and pathology of the hematologic, pulmonary, renal, and hepatic systems with emphasis related to management during CPB (Cardiopulmonary bypass) and life sustaining supports.

CVP 585 Perfusion Technology and Techniques I (4)

This course focuses on the application of principles and techniques to practice extracorporeal circulation and selective perfusion techniques for special populations. Students will be expected to demonstrate competencies in simulation to transition to a participatory role in the operating room.

CVP 586 Pharmacology II: Clinical Perfusionists (3)

Learners apply principles of pharmacokinetics, pharmacodynamics, pharmacotherapeutics, and pharmacogenetics to select drug categories used in cardiovascular perfusion and circulatory support therapies.

CVP 587 Research & Evidence-based Practice (2)

This course provides an overview of research methodology in the biological sciences and application of evidence to practice. Distinctions will be made between research and evidence-based practice with an emphasis on appraisal of best evidence in a focused area of interest.

CVP 610 Bioethics (2)

Students will apply learned theoretical and principle-based approaches to bioethical problem solving for classic issues encountered by the clinical perfusionist.

CVP 611 Clinical Application I (5)

This course focuses on the application of principles, techniques, and devices used in the care of adult patients requiring perfusion management. Advanced beginner level.

CVP 612 Perfusion Technology and Techniques II (4)
Emphasis is on long term support of the critically ill patient requiring ECMO and VAD management & other perfusion supports needed to manage the complex patient. Students will apply knowledge of the patient's disease/condition when deciding the best extracorporeal set up for management.
CVP 613 Research Project: Planning (2)
Students will apply research concepts and methods to the investigation of a perfusion-related topic for the capstone project. Learners will work individually, and in groups to design and plan their capstone project.
CVP 618 Clinical Application III (5)
Students will be placed within a clinical setting to advance skills required to perform safe CPB, ECMO, and procedures using special techniques and equipment. Moving from an advanced beginner to competent practitioner level.
CVP 619 Health Policy & Law for the Clinical Perfusionist (2)
This course examines the interplay of legal, ethical and policy issues in the delivery of healthcare and business practices of the perfusionist. The role of the perfusionist in designing, influencing, and implementing health policies will be emphasized.
CVP 620 Neonate, Infant, & Pediatric Perfusion (3)
This course focuses on the basic concepts of CPB and ECMO for neonatal, infant, and pediatric patients. Simulated experiences will focus on decision making for treatment selection, planning, and management of these unique patient populations.
CVP 621 Research Project: Implementation (2)
Students will implement a research project within an interdisciplinary team framework.
CVP 622 Research Project: Dissemination (1)
Modes of dissemination of findings will be discussed. Students will disseminate results from their research/quality improvement (QI) project to the interprofessional team and to peers.
CVP 626 Clinical Application IV (6)
Students will be placed within a clinical setting to master skills required to perform safe CPB, ECMO, and other procedures requiring special techniques and equipment. Competence level.
CVP 627 Perfusion Technology and Techniques III (1)
Complex case management related to transplantation and devices will be presented. Additionally, emphasis will be placed on developing individualized plans of care for medically challenging patients requiring complex perfusion interventions. Competence level.
CVP 628 Comprehensive Review: Clinical Perfusionist (1)
This course prepares students for the American Board of Cardiovascular Perfusion Certification Exam. It will cover perfusion basic sciences and cardiopulmonary bypass and clinical application.

GRADUATION REQUIREMENTS – MASTER IN CARDIOVASCULAR PERFUSION PROGRAM
Students will be recommended for graduation when they:

1. Completion of the prescribed curriculum, earning a passing grade in all components of the curriculum.
2. Cumulative GPA of 3.0.
3. Completion of course requirements within five (5) years of entrance to the program. Entrance into the program is defined as enrollment into the first course of the program.

STUDENT CONDUCT AND HONOR CODES (please refer to NHWSN Student Handbook)

Professional Integrity

Professional integrity provides a sense of personal satisfaction derived from a confidence in one's proven values. This sense of honor is an integral part of living and as such, influences our thinking so that we understand the need to exhibit integrity, respect for individuals and groups and also assume responsibility for our actions as professional individuals.

To provide patient care and other necessary health care services, students are required to comply with University/Clinical Agency policies and standards of conduct. The usual courtesy and consideration for others will provide sufficient guides for most situations. Maintaining confidentiality of patient information and supporting individual rights to privacy and safe care are also required under this code.

Code of Ethics: Practice Guidelines – American Society of Extracorporeal Technology

Preamble

The purpose of a code of ethics is to acknowledge a profession's acceptance of the responsibility and trust conferred upon it by society and to recognize the internal obligations inherent in that trust. The following paragraphs delineate the standards governing the conduct of members in their professional interactions with patients, colleagues, other health professionals and the general public. Realizing that no code can encompass all ethical responsibilities of the members, this enumeration of obligations in the code of ethics is not comprehensive and does not constitute a denial of the existence of other obligations, equally imperative, and not specifically mentioned herein. This code of ethics shall be binding on the members of this Society.

Canon 1

Members must uphold the dignity and honor of the profession, accept its disciplines and expose without hesitation illegal, unethical and incompetent conduct.

Interpretive Statements

a. Members are part of a collaborative effort to deliver proper health care to the patient under the members' care.
b. The member has a personal, as well as a professional, obligation to protect and safeguard the patients from illegal and/or unethical actions or the incompetence of any person.
c. The member must maintain personal integrity and establish the appropriate means to fully protect his freedom of conscience for the delivery of services to the patient.
d. A member who demonstrates incompetence or illegal conduct as it pertains to this Code of Ethics shall be exposed to the proper authorities.

Canon 2

Members shall respect the patients' rights and dignity and shall uphold the doctrine of confidentiality regarding privileged patient information.

Interpretive Statements

a. Information about the patient's clinical situation will be kept confidential, unless otherwise required by law, to protect the welfare of an individual or community. Written guidelines or protocols of an institution or department may be instrumental in deciding the way confidential information is handled for release.

Canon 3

Members shall provide only those services for which they are qualified. Members shall not misrepresent in any manner, either directly or indirectly, their skills, training, professional credentials, identity, or services.

Interpretive Statements

a. Members will accept responsibility for the exercise of sound judgment in the delivery of services to the patient and shall be accountable for the quality of the service provided.
b. Members will provide accurate information about the profession, and the services they provide, as well as the members' own qualifications.
c. The members shall not engage in practices beyond their competence or training.
d. Members shall not delegate to a less qualified person any activity which requires the unique skill, knowledge, and judgment of a formally educated perfusionist. Services rendered by supportive personnel will be under the supervision of a formally educated perfusionist.

Canon 4

Members shall strive to improve their medical knowledge and skills on a continuing basis.

Interpretive Statements

a. Members shall support quality didactic and clinical education.
b. Professional conduct will be maintained toward members' peers, students, medical staff, and patients.
c. Members shall participate in educational activities, either by individual study or through continuing education, which will enhance their basic knowledge to continue to provide quality healthcare to the patient.

Canon 5

Members shall maintain and promote high standards for perfusion practice which may include education, research, and scientific presentations and/or publications.

Interpretive Statements

a. Members shall protect the rights of patients and animals involved in research and conduct research in accordance with accepted ethical and reporting standards.
b. All members who participate or contribute as an author or investigator will receive proper recognition and responsibility for the data being presented and/or published.
c. The members shall maintain and promote high standards for research, including:
    1. Full public disclosure and/or acknowledgments of support for research.
    2. Avoidance of fraud and plagiarism.
    3. Scientific articles will not be published in more than one journal without referencing the primary publishing journal, and the consent of the editors of all publications must be obtained.
d. Representation of the Society by members should be in writing and/or at the direction of or by the Board of Directors and/or Executive Committee.

Canon 6

A member shall always hold the well-being of the patient to be paramount and shall not act in such a way as to bring the member's interests into conflict with the patient's interests. A member shall deliver health care services without regard to race, color, creed, national origin, sex, age, religion, sexual preference or physical and/or mental condition.

Interpretive Statements

a. A member's professional practice and adherence to ethical principles shall take preference over business practices. Members shall place service before material gain.
b. A member should fully disclose to clientele other business practices that may appear as a conflict of interest to clientele and/or the public. These may include but are not limited to:
    - Consultant for fee
    - Clinical instructor (support staff from industry)
    - Sales representative
    - Technical advisor
    - Lecturer for fee
    - Acceptance of fees, gratuities, funding from industry

c. The American Society of Extracorporeal Technology (AmSECT) is the professional society for the cardiopulmonary perfusionist. Its membership encompasses most of the practicing perfusionists. The purpose of the Society is defined in its mission statement: "The mission of AmSECT is to foster improved patient care and safety by providing for the continuing education and professional needs of the Extracorporeal technology community." In that the ultimate concern of the Society is to improve patient care, it is our position that clinicians engaged in the practice of cardiopulmonary bypass are required to and must be allowed to periodically evaluate the equipment which is utilized in cardiopulmonary bypass in the effort of continuously improving patient care which should include not only patient outcomes but safety as well. To this end, AmSECT holds that each perfusionist has the following ethical and professional responsibilities:
    - The perfusionist is the most qualified individual, by training, education, experience, and based on the job description have the responsibility to evaluate, recommend, select, and implement the components of the Extracorporeal circuit so that patient safety and care are optimized.
    - The perfusionist will always attempt to fairly evaluate all competing products and services, with the principal selection criteria being that of regard for patient safety and well-being.
    - The perfusionist shall always base any decision on product and service selection on clinical evaluations and documented clinical and scientific data.
    - The perfusionist will not allow the opportunity to arise whereby objective evaluations of products and services are compromised by gratuities, gifts, entertainment, consulting engagements, employment status, or any other material or personal gain.

    In conclusion, it is the responsibility of the perfusionist to make decisions regarding the selection of clinical products with the patient as the primary concern.

Student Rights and Responsibilities

Student perfusionists have the right to expect they will be provided with the quality of education necessary to fulfill the objectives of the program. The program will provide the student with the knowledge and skills necessary to administer perfusion services.

Students have the right to be regarded as a professional member of the health care community and receive fair objective evaluations and to exercise due process of appeal.

Students have the right to expect that they will not be exploited relative to total time commitment at the University or at the clinical affiliation facilities. A reasonable number of hours to ensure patient safety and promote effective student learning should not exceed 64 hours per week. This time commitment includes the sum of the hours spent in class and all clinical hours averaged over 4 weeks. Students must receive a minimum of 8 hours of rest period for every 16-hour consecutive work period.

Students are responsible for always demonstrating a professional manner and adhering to regulations and policies set forth in the policy manuals of affiliating clinical settings, NHWSN, and the Cardiovascular Perfusion Student Handbook. Administrators, faculty, and staff should be addressed using their appropriate titles. Written communications (e.g., emails, texts, evaluations) should be composed using professional language. Students should maintain professional behaviors and integrity throughout the program, e.g., including but not limited to times when wearing or carrying Emory branded items, engaging on social media, or dialogue regarding perfusion programs.

Student Rights Related to Other Students

Students should not be asked to provide "personal or professional information" about other students in the program. Practitioners should not discuss issues related to student progress or general status in the presence of

other students. Students should inform clinical practitioners that they are not allowed to discuss the progress or other issues related to other students. Such matters should be addressed with program faculty in a confidential manner. If a student is asked about the status of other students by clinical personnel, the student is expected to report this to the Program Director.

STUDENT INFORMATION

Student Advisement

All students will be assigned a faculty advisor from among the faculty of the Cardiovascular Perfusion program. The role of the advisor is to review both academic and clinical progression of the student. Students or faculty may request meetings at any point to discuss pertinent issues. Such issues may include, but are not limited to:

- Academic progress
- Clinical progress
- Research opportunities or progress
- Personal issues of concern

Expectations for Classroom and Clinical Attendance

Students are required to attend all scheduled classes, lectures, and laboratory and simulation-based learning experiences. Didactic courses and clinical time will never be scheduled concurrently. In addition to scheduled classes, students are required to attend departmental in-services at the institutions at which they are currently rotating on the days they attend clinically.

Employment

It is highly recommended students do not work during the 22-month program. Adequate financial resources should be secured prior to beginning the program. The scheduling of outside employment is not permitted during class, simulation, or clinical time. Outside employment is not permitted within 10 hours of class (didactic or simulation) or clinical.

Furthermore, schedules for the Cardiovascular Perfusion program are always subject to change and may cause conflicts with previously scheduled outside employment. It is imperative to realize the faculty will make no concessions in clinical or class time due to outside employment. Such conflicts are not valid cause for being excused from class or clinical. Further, students are expected to make themselves available for requested consultations or meetings with faculty, and outside employment will not be a valid cause for delaying or missing a meeting. The attendance of all outside appointments during class, simulation or clinical time will be considered an unexcused absence without prior approval from the Program Director and Clinical Coordinator.

Students cannot be employed as perfusionists by title or function while in the student status of the Cardiovascular Perfusion program. A student may not receive compensation for perfusion services or be permitted to render perfusion services outside the Perfusion Program. A student is forbidden to use the title of certified clinical perfusionist (CCP) while in the program as they do not have the required credentials or certifications. Any student using the title CCP will be in violation of the Honor Code and subject to immediate dismissal from the program.

CLINICAL PLACEMENT GUIDELINES

Perfusion Clinical Placement Guidelines

1. **Priority Placement**
    - Students who independently identify a clinical site and secure agreement from the site for preceptorship will receive priority consideration.
    - The clinical site must be approved by the Program Director and have sufficient case volume and variety to meet the program requirement of 75 cases, including specific case types.
    - The clinical site must be identified during the first semester of the program.

2. **Regional Preferences**
    - Students may submit their preferred region for clinical placement from the following options: Southeast, Northeast, Midwest, Southwest, or Northwest.
3. **Placement Assignments**
    - Clinical placement assignments will balance student preferences, compatibility with the clinical site, and the required case volume and type (details provided below).
    - Assignments are facilitated collaboratively between the Office of Clinical Placements and the Perfusion Program Director and Clinical Coordinator.
4. **Monitoring and Adjustments**
    - Clinical perfusion cases performed will be closely monitored. Placement adjustments may be made based on case reviews to ensure students meet program requirements.
5. **Observational Clinical Experiences, Hands-On Clinical Perfusion Cases**
    - Students will complete observational clinical experiences in their first and second semesters.
    - Students will complete hands-on clinical perfusion cases in their third, fourth, and fifth semesters.
    - Students will be in the clinical setting/rotations five days per week including Saturday and Sunday.
    - All clinical time missed will need to be made up by the student.
    - Students are required to accurately log their clinical perfusion cases daily according to the American Board of Cardiovascular Perfusion's *Definitions of Qualifying Primary Clinical Perfusion Activities* listed previously.
    - During the Fall semester, students' last day of clinical will be December 23.
    - Spring semester clinical begins January 2.
6. **Expenses**
    - Students must be prepared to travel outside the Atlanta-Metro region and the state of Georgia, to ensure timely accrual of required clinical cases. Students are responsible for covering all associated costs, including transportation, housing, meals, and any other expenses.

Treating Patients in the Clinical Setting

Clinical experiences are designed to allow students to observe and participate in methods of treatment and use of equipment in the clinical setting. No student should attempt to use equipment that they have not been trained to use without appropriate clinical instruction and supervision. Students who feel uncomfortable about attempting an assigned task should always consult a clinical instructor, clinical coordinator or facility designated representative for assistance and/or supervision. The clinical curriculum provides perfusion experiences to build students to become competent perfusionists.

Clinical Practicum

Clinical experience begins as observational and is progressively increased to five days per week in the third, fourth, and fifth semesters, including the student taking call and/or participation in transporting patients. Competency based testing will occur throughout the program with the ability to perform in the clinical setting based on successfully passing competency assessments. Significant attention to classroom study and simulation-based learning experiences is focused in the first two semesters of the program and greater clinical focus during the third, fourth, and fifth semesters.

When students begin hands-on clinical application, they have already gained basic knowledge of advanced physiology, advanced pharmacology, advanced health assessment and perfusion technology and techniques. In addition, simulation-based learning experiences in a mock operating room (OR) will provide foundational knowledge and skills to begin working under the guidance of the clinical preceptor. As students advance, the

curriculum is designed to allow progressive experiences in the acquisition of knowledge and development of skills and judgment. Seminar courses provide opportunities for clinical conference time to process student experiences as well as the inclusion of case scenarios for advancing critical thinking and problem-solving skills.

During clinical rotations, students provide perfusion care to a variety of patients using varied technologies and techniques. Guided instruction by Certified Clinical Perfusionists affords the student a variety of learning experiences. Individualized instruction, development of perfusion management plans, and case discussions are used to assist the student in conceptualizing, analyzing, and evaluating various perfusion strategies as they are related to patients' specific needs. Experiences build on one another from simple to complex cases and techniques. Basic perfusion skills are developed, and theoretical principles are applied with many opportunities to learn the administration of safe perfusion services to diverse populations of patients in a variety of settings. Program enrichment is achieved through setting individualized goals in collaboration with program advisors. Instruction is designed to achieve independence in thought, judgment, and intervention consistent with the responsibility, competence, and scope of practice of the perfusionist. Each student can expect to rotate through multiple different clinical sites during their clinical practicum experiences.

Clinical Sites as of 8/15/2025

Clinical Site Name	Status
Children's Healthcare of Atlanta - Arthur M Blank Hospital	Active
Atrium Health Navicent The Medical Center	Active
Children's of Alabama	Active
Emory Saint Joseph Hospital	Active
Emory University Hospital	Active
Emory University Hospital Midtown	Active
Loma Linda University Medical Center	Active
Mobile Infirmary Hospital	Active
Phoebe Putney Memorial Hospital	Active
South Georgia Medical Center	Active
St. Josephs Candler Hospital	Active
Tanner Medical Center	Active
University of Alabama at Birmingham Hospital	Active
University of Maryland St. Joseph Medical Center	Active
Wellstar Kennestone Regional Medical Center	Active
Medstar	Active - Sending student in Fall 2025
Northside Hospital Gwinnett	Active - Sending student in Fall 2025
Piedmont Athens Hospital	Active - Sending student in Fall 2025
UNC REX Hospital	Active - Sending student in Fall 2025
Wellstar MCG Health Medical Center	Active - Sending student in Fall 2025
Piedmont Atlanta	Active - Sending student in Spring 2026
Oschner	Pending Agreement
University of Texas Medical Branch (UTBM)	Pending Agreement
Franciscan Health Crown Point	Pending Agreement
Franciscan Health Michigan City	Pending Agreement
Barnes-Jewish Hospital (BJC Healthcare)	Pending Agreement

Clinical Practice by Semester and Term

Semester	Term	Clinical Days	Course
1	Fall	3 days/semester	Foundations of Perfusion Technology & Techniques (30 observational hours)
2	Spring	9 days/semester	Clinical Application I (90 observational hours)
3	Summer	5 days/week may include Saturday and/or Sunday	Clinical Application II
4	Fall	5 days/week may include Saturday and/or Sunday	Clinical Application III
5	Spring	5 days/week may include Saturday and/or Sunday	Clinical Application IV

The Clinical Coordinator and the Certified Clinical Perfusionist preceptor play a significant role in the quality of clinical education the graduate student perfusionist receives. Clinical experiences at each of the rotation sites are unique. Students will be assigned in the clinical area by the person responsible for scheduling personnel to cases in each institution. The degree of student responsibility during a procedure should be relative to the program's length of time, the patient's physical status, and the procedure's complexity. Experiences will be contingent upon student performance, demonstrated capabilities, and knowledge base. Supervision must be immediately available in all clinical areas when the student is managing perfusion. The student must *only* be supervised by a Certified Clinical Perfusionist.

Student education is enriched by specialty rotations in open heart, organ transplantation, and neonate/infant/pediatrics. Students are expected to review didactic materials for these specialties before their rotation, as a significant amount of time may pass between the academic coursework and their specialty practicum experience.

Responsibilities in preparing for clinical experiences are specific to the clinical institution and its policies. However, in general, students will be responsible for:

- Obtaining their patient assignment *prior to the clinical day*, whenever possible, and completing a care plan for all assigned cases. If a clinical assignment is posted after 9pm EST, the student should create a care plan that closely aligns with the site's population/case load.
    - Care plans should be selective for each patient/case. Copying and pasting from previous care plans that do not align with the assigned case is unacceptable and faculty may require resubmission of the corrected care plan.
- Identify key information relevant to the case based on chart review, team-based communication, etc.
- Preparing a comprehensive, individualized perfusion management plan.
- Discussing the plan of care with the supervising perfusionist.
- Implementing an appropriate plan of care.
- Performing a postoperative patient assessment post-perfusion.

PROFESSIONAL CONDUCT AND CLASSROOM AND CLINICAL BEHAVIOR

- Perfusion students are expected to conduct themselves in a manner that is consistent with being a professional in both the academic and clinical settings.
- Behavior is expected to support a positive learning environment free of distractions and disruptions. Therefore, no inappropriate use of alcohol or any use of illicit substances will be tolerated.

- Perfusion students are expected to conduct themselves in both the academic and clinical settings in a manner that is befitting a professional advanced practice nurse.
- Absolutely no alcohol is allowed in clinical settings. Students are not to drink alcoholic beverages before class or clinical experiences. Any conduct that appears to indicate alcohol consumption, such that the student is exhibiting behavior of being loud, boisterous, and unruly will be grounds for dismissal from class and from clinical.
- Students that appear under the influence of alcohol or other substances in these learning environments may be subject to disciplinary action up to dismissal from the program.
- University/health care facility police will be notified to escort any student off campus who does not immediately comply with instructions to leave the campus or clinical.

Professional behavior is always required while at NHWSN and at clinical sites. Students enrolled in the Cardiovascular Perfusion program are expected to maintain a level of professionalism in their personal appearance, dress, conduct and speech (both verbal and non-verbal). Behavior or language which is offensive, inappropriate, crude, or polarizing is considered unprofessional and therefore is considered unbefitting to the status of a graduate perfusionist student. Students should familiarize themselves with the NHWSN Student Handbook and clinical site Policy and Procedure Manuals which detail appropriate clinical behavior.

Policies and Procedures of specific clinical sites are to be always followed. The student is expected to come to clinical prepared for the day's experience having:

- Completed the appropriate readings and preparation.
- Dressed appropriate and supplies at hand; and
- Prepared to explain the plan of perfusion care to the preceptor or clinical site coordinator.

The perfusion student is responsible for ensuring the required equipment is in the room, reviewing the chart, and preparing the equipment set up and monitoring needed for the patient during the perfusion period.

The following clinical behaviors are required of the student perfusionist:

1. Arrive at the clinical site in time to prepare for assigned cases or as directed by the Clinical Coordinator. The student MUST have the operating room set up with the appropriate equipment before the first patient is seen. This includes a thorough machine/device check before every case. Changing case assignments in the morning should only be done with the approval of the Clinical Coordinator and in collaboration with the assigned preceptor.
2. Check the OR schedule for additions or deletions in the AM. Students should arrive to the operating room at the time designated by the Clinical Coordinator, regardless of the scheduled start time for their first case, unless directed otherwise by the Clinical Site Coordinator and Program Director/Clinical Coordinator.
3. All equipment and devices must be set up and calibrated.
4. Medications must be labeled with the drug name, concentration, date and time it was drawn up, the initials of the individual who drew up the medication, and any other appropriate facility requirement.
5. Identify each patient by name, wristband and chart.
6. All interactions with patients will reflect a concern for the physical and psychological well-being of the individual with the goal of making each patient's experience as safe and pleasant as possible.
7. Respect each patient's modesty and dignity.
8. Informed consent must be checked prior to the administration of medications.
9. Patient history, preoperative consultation, and required laboratory data should be reviewed before the case starts.

10. The student's perfusion management plan will be discussed with the preceptor before the case begins.
11. Once the patient is moved to the OR table, a Certified Clinical Perfusionist must always remain in attendance.
12. The perfusion student assists in the proper positioning and movement of the patient with team guidance.
13. Conversations in the OR should be professional, appropriate, and limited, especially while the patient is conscious.
14. Give a complete report to the destination staff.
15. When students are not assigned to a case, the time at the clinical site should be utilized constructively, for example, reading, entering completed cases into clinical log tracking system.
16. Before leaving the clinical site, the perfusion student must obtain permission from the appropriate preceptor/clinical site coordinator. Requests to leave clinical early without prior approval from the Program Director and Clinical Coordinator, unless in cases of emergency or acute illness, may be considered an unexcused absence and result in the student being counted as absent from clinical.
17. Never hesitate to ask for help.
18. Cell phone use is prohibited in the operating room environment for activities other than direct communication related to patient care and/or with the preceptor's approval to review clinical information.

GUIDELINES FOR REPORTING CRITICAL INCIDENTS

1. During clinical rotations, students are required to follow the hospital's policy and procedure for reporting critical incidents.
2. Students are to immediately report to the Program Director any critical incident they are directly involved in that results in possible or actual adverse outcomes to a patient. An email or text *without specific details* must be sent to alert the Program Director to call you to discuss the incident by telephone.
3. Failure to comply with these guidelines may result in disciplinary action.

COMPLETION OF STUDENT CLINICAL CASE RECORDS

Students are required to record each day's clinical activities on the perfusion tracking system beginning with entry into the OR suite. All cases must be entered within 48 hours. Students must clock in and out for their lunch break for each day in clinical in their time logs. Adjusting time logs is considered unethical and any student who does so may be subject to the honor code. Any significant adjustment needed in case logs must be reported to Program Director and Clinical Coordinator via email. Failure to maintain timely records will require the student to request in writing from the Program Director permission to retroactively log in case information. These records are required to support the student's application for the National Certification Exam. The program is required to keep current records on file.

UNIVERSAL BLOOD AND BODY FLUID PRECAUTIONS

Universal blood and body fluid precautions shall be always observed. This includes:

- Masks worn during equipment set up of the circuit, surgical procedures, cannulation, insertion of central line, etc.
- Protective eye wear must be always worn to protect against aerosolization or splashes of blood or secretions.
- Gloves shall be worn for all placement of cannulas and other catheters in the body, and/or when exposure to blood and/or body fluid is possible.
- Barrier or repellent gowns are to be worn when caring for known high-risk patients.

- Needleless IV systems are to be used whenever available.
- Appropriate personal protective equipment must be used as determined by best evidence available and site requirements.

ENVIRONMENTAL AND CHEMICAL HAZARDS

Environmental and chemical hazards exist in the operating room. Responsibility for accepting the risks associated with environmental and chemical hazards rests with the individual who chooses to work within this environment. The institution's responsibility is to take the required precautions to minimize potential hazards. The following points should be kept in mind when working in the OR environment.

- Selected inhalation anesthetic agents are hepatotoxic. While evidence in the literature is inconclusive, with sustained exposure to an anesthetic environment, an increased risk for spontaneous abortions, birth defects, and certain types of malignancies for both male and female personnel have been reported.
- Students may be exposed to blood products, body secretions, used syringes and needles. Universal precautions must always be adhered to. It is **mandatory** that students report all exposures to both the clinical site and program faculty immediately. Guidelines for reporting *Critical Incidents* can be found in the NHWSN Student Handbook.
- A suspected allergy or intolerance to latex and/or powder should be evaluated by the student's health care provider. On occasion an individual may develop sensitivity to various agents.
- Radiation exposure will occur during certain operative procedures. Lead aprons and thyroid shields are available and must be worn during radiology procedures.

CLINICAL DRESS CODE

Business casual is to be worn on the first day of each new rotation. Proper street attire should be worn to and from each clinical facility. Proper street attire does **not** include shorts, flip-flops, or other articles of clothing not moderate in appearance. Hospital provided scrubs are to be worn only in the facility—never outside the building. Surgical attire is frequently provided by the hospital and is not to be worn off hospital property. Where surgical attire is not provided, a student is expected to obtain scrubs appropriate to the facility. Name badges identifying the student are to be always worn. Students are expected to comply with each institution's dress code policy.

In addition, to prevent infection and provide for patient and personnel safety, the following guidelines are to be adhered to while in the clinical setting:

- All hair must be covered.
- Facial hair that prevents a student from wearing an N-95 mask and passing the 'fit test' must be removed. A student may not 'opt' out of this requirement.
- Fingernails must be clean and of an appropriate length. Artificial nails are prohibited in the clinical area to reduce the possibility of sepsis.
- Jewelry is to be kept to a minimum (wedding bands are permitted, no dangling earrings, necklaces under clothing only).
- Avoid use of strong cologne, aftershave, perfume, and excess makeup. Students should maintain appropriate personal hygiene.

CLINICAL REQUIREMENTS

The School of Nursing and health care agencies health requirements and policies apply to all students. It is the student's responsibility to submit accurate and timely health information. Failure to comply with the student health policies will result in exclusion from clinical learning sites.

Student Health Insurance

All Emory University students must obtain and maintain health insurance coverage for the duration of the program. Students are automatically enrolled into the Emory University Student Health Insurance Plan (EUSHIP). If you desire to be enrolled in EUSHIP, no further action is required. If you wish to waive enrollment and use your own insurance plan, access the waiver form in OPUS and refer to the health tile. **The deadline to waive ANNUALLY is August 1st**. For further information, including customer service guidance, refer to the student health insurance web page. For more information about the Aetna administered plan, refer to the Aetna Student Health website.

Note: Clinical agencies are not required to provide free treatment to students in the event of a needlestick or blood/body fluid exposure. Students should use their health insurance to cover the cost of treatment, and any uncovered costs will be reimbursed by the School of Nursing.

Clinical site requirements vary, and additional health requirements may be requested prior to beginning a clinical rotation. The student is responsible for updating the Program Administrator and Program Director/Clinical Coordinator of any changes in their health status and documentation of certifications.

Certifications and Immunizations

Documentation that students meet the following requirements is to be on file for each student. Students are responsible for tracking and ensuring all certifications and immunizations are up to date and do not lapse. If a lapse should occur, the student will be ineligible for clinical until up to date.

1. Current BLS, ACLS and PALS certificates - required prior to entering the clinical setting and must be maintained throughout the program. *
2. Tuberculosis - Must provide proof of a negative QuantiFERON-TB Gold or TSpot Blood Test.
3. MMR - Must provide proof of 2 dose vaccine or positive, MMR IgG Titer. Titer(s) must be shown on a laboratory report.
4. Tdap – Proof must be current and not more than 10 years old.
5. Varicella - Must provide proof of 2 dose vaccine or positive, Varicella IgG Titer. Titer must be shown on a laboratory report.
6. Hepatitis B - 2 dose Heplisav or 3 dose vaccine along with a positive Hepatitis B Titer (titer must be a quantitative lab results only or it will be rejected).
7. Influenza Vaccine – Due Annually on October 15th - Must provide proof that includes the providers logo or office information. This should include a complete summary of which arm shot was given, who administered it, and the date placed.
8. COVID-19 Vaccine - Proof of CDC issued card showing complete Covid vaccination of either 2 doses of Pfizer, Moderna, Novavax or 1 dose of the Johnson/Jassen."
9. U.S. Government Issued Identification.
10. Physical Examination - Must provide proof of completed Emory Physical Exam form.

*Note: Required certifications (ACLS, BLS, and PALS) may not expire within 90-days of the end date of the program.

Criminal Background and Drug Testing

Perfusionist program students should be advised that a state criminal history background check is required prior to participation in clinical rotations. Clinical facilities may limit or prohibit students with criminal histories from participating in clinical experiences, and a criminal history could be grounds for dismissal from the program. Additionally, drug screening may be required prior to participation in any clinical practicum. Drug screening may also be conducted at random, or with cause, during participation in Emory University, Cardiovascular Perfusion program or at any clinical site and/or hospital that the student is engaged with during the program. **Failure to**

comply with requests for drug screening or the occurrence of a positive screen are grounds for dismissal from the program and removal from a clinical site.

Policies regarding criminal history checks, drug screening, and general background checks are subject to change without notice during enrollment due to changes in clinical site requirements.

EVALUATION

Faculty and Course Evaluation by Students

Integral to continuous process improvement, the curriculum is regularly evaluated by both students and faculty with revisions made to keep pace with contemporary perfusion practice. At the end of each course, it is the students' responsibility to complete the Faculty and Course Evaluations. Constructive feedback is a useful tool for identifying areas where the course and/or pedagogical approaches to course delivery can be strengthened.

Evaluations are sent to the Associate Dean for Academic Advancement for use in annual faculty evaluations and faculty development. Individual faculty receive aggregate data from the faculty teaching evaluation. Course evaluation data is reviewed by the Associate Dean for Education and Associate Dean for Academic Advancement and Program Director.

Clinical Evaluation of Students

Students in the Master in Cardiovascular Perfusion Science program are evaluated on an ongoing basis throughout the clinical phase of the program. All evaluations are assembled into a composite profile for each student. In general, the criterion for formal clinical evaluation includes the following:

1. Review of the history & physical and preoperative assessment
2. Interpretation of data and determination of patient status
3. Formulation of an individualized perfusion management plan for each patient
4. Preparation in the clinical setting for the specific clinical assignment
5. Preparation of the patient for appropriate use of equipment/devices and techniques
6. Dexterity in technical and mechanical applications of perfusion care
7. Safe initiation of cardiopulmonary bypass (CPB)
8. Management of the patient during CPB
9. Safe emergence of the patient from CPB
10. Accurate documentation in the electronic record
11. Evaluation of the patient for transfer to the recovery area
12. Demonstration of personal and professional maturity

During the clinical practicum, daily clinical evaluations reflect the student's level within the program. **Students are required to provide the Program Administrator with their preceptor's name and email each clinical day before 2:00 pm EST to have a *DAILY CLINICAL EVALUATION FORM* electronically sent**. This form is located under the Forms section of this Handbook. The daily clinical evaluation should be completed and submitted through CORE by the preceptor as soon as possible. Students are required to ensure preceptors complete daily clinical evaluations and should regularly review the completed evaluations of their performance. The Cardiovascular Perfusion program faculty monitor student daily clinical evaluations.

If a clinical preceptor determines the student is having difficulty in the clinical area, the Clinical Site Coordinator should be consulted. If the difficulty cannot be resolved with the help of the Clinical Site Coordinator or if additional assistance is required, the Program Director and Clinical Coordinator should be contacted. The student or the Clinical Coordinator may initiate the discussion. Students are <u>strongly encouraged</u> to be proactive in discussing any concerns they have related to their clinical or academic performance with the Program

Director and Clinical Coordinator. Failure to perform at a clinical level that is commensurate with safe patient care may result in the removal of the student from the clinical rotation. A replacement rotation will be offered only if available. The student will be placed on a goal setting plan and/or clinical probation, with clear objectives and timelines. The failure of the student to successfully complete the goal setting plan or clinical probation may result in program dismissal.

Academic Advisor Review of Student Progress

Each semester an evaluation of student progress is conducted and includes counseling of the student by the student's academic advisor. The student will complete the Academic/Clinical Evaluation Form before the meeting with additional comments added. The advisor may also complete an evaluation form and attach it to the student's evaluation. Perfusion education respects the uniqueness of the learner and encourages commitment, accountability, leadership, self-awareness, and continued professional awareness. Counseling involves a collaborative analysis of strengths and weaknesses and the formulation of an action plan for continued professional growth.

The student must schedule an evaluation conference at the end of each semester with their faculty advisor. Didactic and clinical performance and progress will be reviewed with the intent of formulating objectives for continued development/improvement. Additionally, any student problems or concerns should be addressed at this meeting. A student is expected to be at the following stage(s) during the program.

- Beginner Stage Semester 1-2
- Intermediate Stage Semester 3-4
- Competent Stage Semester 5

The expected level of student performance by stage and outlined by the graduate standards of patient safety, decision making and critical thinking, perfusion management, professional role, and communication skills, is provided in this handbook.

Student Evaluation of Clinical Site Instruction

Students will evaluate their clinical instruction experience using the Clinical Site Coordinator Evaluation and Clinical Preceptor Evaluations annually. The individual evaluation sheets are strictly confidential and only shared with the Program Director and Clinical Coordinator and for program use and will only be shared in aggregate (de-identified) with the clinical site. As with any evaluation, students are expected to be professional and to provide constructive feedback.

Student Evaluation of Clinical Sites

Students will evaluate clinical sites annually using the Clinical Site Evaluation Form. The individual evaluation sheets are strictly confidential and for program use and will only be shared in aggregate (de-identified) with the clinical site. As with any evaluation, students are expected to be professional and to provide constructive feedback. The Clinical Site Evaluations will be reviewed by the Program Director and discussed with perfusion faculty at a faculty meeting to evaluate the clinical site for future use.

Annual Program Evaluation

At the end of each academic year, the student will be expected to complete an evaluation of the program, identifying strengths, weaknesses, and barriers to learning. The Program Director will review the feedback and discuss the results with the program faculty at a faculty meeting for quality improvement.

End of Program Exit Interview

At the end of the program the student will schedule an exit interview with the Program Director. The student will complete a self-evaluation and discuss with the Program Director how the Program Outcomes and

Standards of Perfusion Education were attained during the program. The student will have the opportunity to provide constructive verbal or written criticism of the program.

Alumni and Employer Survey

Graduates are expected to provide a current email contact at the end of the program and will receive an Alumni Survey electronically between 9-12 months. In addition, graduates will be asked to provide employer information and employers will be surveyed regarding the preparation of the graduate for their professional role. The purpose of obtaining graduate and employer evaluation data is for continuous process improvement of the perfusion program.

Summary of Program Evaluation

The Master in Cardiovascular Perfusion Science program conducts an ongoing self-evaluation process at the end of each semester to ensure students are provided with an educational experience of high quality and to maintain accreditation standards set by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). The student has direct responsibility in facilitating this process through the complete and timely completion of required documents. Evaluation includes faculty and course evaluations, clinical site, site coordinator and preceptor evaluations, exit interviews, annual program, alumni, and employer evaluations. Periodically the program will send out surveys on specific issues.

Reflective practice is important for professional growth. Students will complete a self-evaluation at the end of each semester. The self-evaluation collected daily evaluations, and perfusion plans of care are to be submitted to the program faculty via the required forms. Materials will be reviewed by the faculty and used for providing input at the student-advisor meeting.

Electronically completed evaluations will be kept in the students' permanent electronic file on a secure storage drive with restricted access. Access to clinical, preceptor, and site evaluations will be assigned by the Program Director and Program Administrator to relevant parties. School Program Evaluation Committee members and School Leadership Committee members will have access to aggregate data, as required for the School/University to monitor programs and maintain accreditation status. Evaluations are unavailable to persons outside of the program faculty and staff.

Formative and Summative Evaluations in the Cardiovascular Perfusion Program

Student Evaluation					
Area	**By Whom**	**Form**	**Frequency**	**Reported To**	**Summary To**
Clinical Performance	Clinical Preceptor; Clinical Site Coordinator; Instructor/Academic Advisor	Daily Clinical Evaluation Form; End of Semester Evaluation	Daily	Student	Program Faculty
Self-Evaluation	Student	End of Semester Evaluation; Exit Interview	Semester, End of Program	Program Faculty	Program Faculty
Course Grades	Course Faculty	Posted in OPUS	Semester	Student and Registrar	Program Director

Program Evaluation	Student	Self-Evaluation documenting evidence of attainment of Graduate Program Outcomes; Guided Questions by Program Director/Clinical Coordinator	Annually, Program Completion	Program Director or Assistant Director	Program Faculty

Faculty Evaluation					
Area	**By Whom**	**Form**	**Frequency**	**Reported To**	**Summary To**
Course Faculty	Student	Classroom Faculty Evaluation Tool	End of each semester	Faculty of Record/ Associate Dean for Academic Advancement	Dean, School of Nursing
Guest Lecturer	Student	Guest Lecturer Evaluation	After the lecture	Course Faculty	Program Director
Preceptor	Student	Clinical Preceptor Evaluation	End of each rotation	Program Director/ Assistant Director Clinical Faculty	Clinical Coordinator NA Faculty
Program Faculty	Associate Dean for Academic Advancement and Associate Dean for Education	Performance Appraisal	Annually (Spring)	Individual Faculty	Dean, School of Nursing
Program Directors	Dean; Associate Dean Academic Advancement	Performance Appraisal	Annually (Spring)	Program Director	Dean, School of Nursing

Clinical Site Evaluation					
Area	**By Whom**	**Form**	**Frequency**	**Reported To**	**Summary To**
Clinical Preceptor	Student	Clinical Preceptor Evaluation Form	September 1, January 1, May	Program Director/Assistant Director	Clinical Site Coordinator Program Administration
Clinical Coordinator	Student	Clinical Coordinator Evaluation Form	September 1, January 1, May	Program Director/Assistant Director	Clinical Site Coordinator Program Administration
Clinical Site	Student, Program Director/Assistant Director	Clinical Site Evaluation Form Annual Site Visit	September 1, January 1, May 1	Program Director/Assistant Director	Clinical Site Coordinator Program Administration

CLINICAL GOAL SETTING FOR STUDENT IMPROVEMENT

Clinical goal setting may be required for a student at any time during the program. The Clinical Coordinator in collaboration with the Program Director will lead this process. The following is a list of situations resulting in clinical goal setting. Other situations may prompt initiation of a goal setting plan.

1. Unexcused or excessive absenteeism from clinical experience or required educational activities.
2. Documented unsatisfactory clinical performance.
3. Documented failure to demonstrate the ability to correlate theory with clinical work.
4. Documented failure to acquire the technical skills necessary to provide safe perfusion care.
5. A disinterested or unprofessional attitude in the performance or during attendance of program activities.
6. Late or incomplete clinical records, including daily case management plans, evaluations, weekly tracking records and monthly clinical assignments.

The duration of goal setting status is usually a two-month period, or a time limit as specified by the Program Director. If goal setting is due to clinical difficulties, the student may remain at the clinical site for further assessment and counseling. Circumstances surrounding the student's problems will be individually evaluated. The Program Director will review student performance as needed with the clinical faculty and with the student. The faculty will be available to assist students in improving those areas. The student must demonstrate an active effort and satisfactory improvement in performance and/or behavior during the goal setting period. Clinical re-evaluation will use level objectives as criteria. The Program Director, in consultation with the faculty advisor, will decide to remove goal setting status.

GRADING POLICY

The Academic Standards and Policies of the NHWSN reflect the level of intellectual rigor required by both the university and the profession. As a professional school, NHWSN must maintain the highest standards to ensure that the graduates of the program exhibit the level of knowledge, clinical skill, and integrity expected by the public and the profession.

Please refer to the NHWSN Student Handbook for grading policy and course failure policy.

VERBAL/WRITTEN WARNINGS, PROBATION, AND DISMISSAL

Please refer to the NHWSN Student Handbook.

Cardiovascular Perfusion students will be immediately dismissed for the following violations:

- Working as a perfusionist by title or function.
- Initiating or administering perfusion care without permission of a Certified Clinical Perfusionist.

CLINICAL TIME GUIDELINES

These guidelines define the clinical time commitment of student perfusionists during their assigned rotations throughout the affiliate clinical institutions. Students will be oriented to each new clinical facility. Orientation procedures vary among institutions. Students should check with the appropriate personnel to become acquainted with their new site's orientation procedures.

Clinical Scheduling

Student rotation schedules will be distributed as early as possible before a new rotation starts. Most clinical sites require specific documentation to be completed by students immediately prior to their rotation beginning. Distance rotations may also require documentation for housing. Students will be provided with the documentation from the Program. **Students are required to complete and return or submit the documents within 48 hours of receiving the communication from the Program. If the student is unable to complete the documentation within 48 hours, they must contact the Program Director and Clinical Coordinator in writing via email with both the rationale and the date and time by which they will have the documentation completed.** Failure to complete documentation within these guidelines will result in the student taking full responsibility for compliance and onboarding documentation, including any housing arrangements.

Students will be scheduled for clinical experiences both during normal daytime hours, and alternative times at certain specified sites, and weekends. Requests for changes in clinical time or scheduled clinical days must have the approval of the Program Director first, followed by the Clinical Coordinator. Schedules will not be designed to accommodate outside personal activities.

Alternative Scheduling and Weekend Experience

All students may be assigned alternative clinical time at certain clinical sites. Examples of alternate times may include the following:

- 12:00 p.m. to 8:00 p.m.
- 3:00 p.m. to 11:00 p.m.
- Saturdays or Sundays
- 11:00 am to 11:00 pm
- 7:00 pm to 7:00 am

When scheduled for alternative day hours, students are to report to the Clinical Site Coordinator or designee in charge for their assignment. Students may be assigned weekend clinical experiences. There

may be experiences to participate in transport assignments. If transport is an option, the Program Director must provide approval and appropriate release statements signed.

EXCUSED AND UNEXCUSED ABSENCES GUIDELINES

Reporting an Absence

It is mandatory that the student notify the appropriate persons if for any reason scheduled classes, simulations, meetings, conferences, or clinical assignments cannot be attended. Notification must occur prior to the scheduled activity hour. Lateness of any kind must be reported to the Program Director, Clinical Coordinator, Course Coordinator/Clinical Site Coordinator and Program Administrator. Three late arrivals (total) during the duration of the program for any of the above listed activities may result in the loss of a personal day.

The Cardiovascular Perfusion program **DOES NOT** follow the NHWSN academic calendar regarding scheduled time off - Winter, Spring Breaks, etc.
During the Fall semester, students' last day of clinical will be December 23.
Spring semester clinical begins January 2.

Procedure for Reporting an Absence

- Students are responsible for identifying proper call out procedures, including key individuals and their contact information, on the first day of each new rotation. The student should contact the clinical site between 06:00 am and 07:00 am or based on specific guidelines by the site as directed during orientation to the site.
- Identify yourself as a perfusion student from Emory University Cardiovascular Perfusion program, the reason for the absence, and request that perfusion personnel be notified of your absence or tardiness.
- In addition, notify the following parties **in the same email:**
    - Program Director
    - Clinical Coordinator
    - Program Administrator
    - Failure to notify all parties in the same email will result in a personal day deduction. If no personal time is available, the student will be required to make-up the day(s). This may occur after the scheduled graduation.
    - NO MORE THAN 3 unexcused time offs are allowed in the program, *including both clinical and class days*. If more than 3 unexcused absences are taken, the student must make up more time at the program's end. This may occur after the scheduled graduation. The amount of time to be made up is at the discretion of the Program Director.
- Students notifying clinical sites of absence while failing to notify the Program Director will be subject to disciplinary action.
- Students are to follow the clinical schedule provided by the Program. If changes to the schedule are necessary, they must be made before the clinical day, Monday through Friday, and in communication with the clinical site and the Program Directors. Requests to adjust the assigned clinical schedule should be approved by Program Directors before requesting approval from the clinical site. Should a student not be assigned to an operating room the night prior to their clinical day, they will still be expected to report to the clinical site and work with the Clinical Coordinator and/or preceptors to identify an appropriate assignment. Failure to attend a clinical day as assigned by the Program will result in an unexcused absence and deduction of a personal day. The student, at the discretion of the Program faculty, may also be required to make up the missed clinical day.
- **Leaving the clinical site without appropriate release by the Clinical Coordinator or designee is not permissible.** Appointments with healthcare providers and others are to be scheduled on your own time. Requests should not be made at clinical sites to leave early for appointments and other non-emergency

situations. **Exception** – bona fide emergencies. If such an emergency occurs, the student is to notify the Program Director or designee immediately to determine the best course of action.

- Absence other than illness, e.g., automobile, utility, or weather problems, will be treated the same way as an illness. Notifying appropriate individuals is to be carried out as described above.
- Students shall follow the daily schedule provided to them throughout each clinical rotation. Deciding for "trades" in return for "time off" will be allowed with prior approval of the Program Director and Clinical Coordinator. Failure to follow these guidelines will result in mandatory make-up time and/or disciplinary action.

Personal Time

- No time off will be granted during January, February, March, April, or May of the second semester. Students will be eligible for personal time beginning in their third semester of study.
- From September 1st of the second year in the program, until the date of graduation, a total of three (3) personal days are available.
- Students are responsible for obtaining handouts, reviewing didactic materials etc.

Procedure for Requesting Personal Time

- The student needs to submit an electronic personal time off request at least two months in advance. The electronic request link can be accessed on the Cohort Canvas page.
- Personal time cannot be granted during the orientation period at the beginning week of a rotation.

Holiday Time

In addition to personal days, the following will be observed as national holidays and students will be granted such time off or compensatory time off if the student works on the holiday. If a student observes holidays or civic occasions that vary from the list below, they should contact the Program Director as soon as possible. Additional days may be observed at some clinical sites where the student is rotating, and the student should check with the Clinical Coordinator for these days.

- ✓ New Year's Day
- ✓ Martin Luther King Jr. Day
- ✓ Memorial Day
- ✓ Juneteenth
- ✓ Independence Day
- ✓ Labor Day
- ✓ Thanksgiving Day
- ✓ Christmas Day

Funeral Time

- Students are granted three (3) bereavement days for the death of an immediate family member (parent, spouse, child, grandparent, or sibling). All the above designations include "step" and "in-law" derivations.
- Students must notify the Program Director, Program Administrator and Clinical Coordinator of the site when funeral time is to be requested.
- Personal time may be requested if needed for the funeral of others.

Military Duty

- In the event a student in the military reserve is ordered to active duty, the student will be given a LOA (Leave of Absence) to fulfill their military duty.
- Students should notify the Program Director upon receiving active-duty orders and a copy of the orders must be provided for the student's file. Students on active military duty are responsible for any material missed during their leave from the program. Depending on the length of absence, a specific plan will be

developed in collaboration with the Program Director outlining a make-up plan to complete missed academic classes and clinical time.
- Students taking a military leave of absence will graduate at the end of the semester in which all program requirements are complete.
- Two weeks of annual training or weekend reserve duties DO NOT QUALIFY for a leave of absence. Such duties must be scheduled on the students off days or as a personal day.

Jury Duty
- A student receiving notification of jury duty should immediately contact the Program Administrator.
- The student should notify the School of Nursing Registrar and obtain enrollment verification documentation.
- The Program strongly supports public service by students; however, meeting accreditation requirements may supersede such public service.

Leave of Absence
Students should refer to the NHWSN Student Handbook for details about leave requests.

Weather
Weather can be unpredictable. Should the University have a delayed opening or unscheduled closure due to weather, students will not be expected to attend class. Students should attend clinical. The student should use common sense regarding travel to the clinical site when the weather is hazardous in their area. This is particularly critical when on distant rotations and weather differs from Atlanta, GA. If the student believes the local conditions are too hazardous for driving, the student should call the Program Director and clinical site or arrange a delayed start if weather conditions improve. In the event the University remains open, and the student misses class or clinical day due to weather, without approval by the Program Director, this is an unexcused absence.

SOCIAL MEDIA GUIDELINES
The following considerations should be reflected on when social media is used by all students, staff, and faculty.
- ***Nothing is private:*** Anything you say online can be misunderstood or misinterpreted. Anyone with access to the web can gain access to your activity on social media regardless of privacy settings and attempts to separate your personal and professional life may be unsuccessful.
- ***Do no harm***: Respect your audience. Do not use ethnic slurs, personal insults, obscenity, or engage in any conduct that would not be acceptable at Emory University or any of our many clinical sites. Show proper consideration for others' privacy and for topics that may be considered objectionable or controversial such as politics and religion.
- ***Selfies: Selfie photos should not be taken while caring for patients and should not include any protected or confidential information, including patient images and information, medical records, etc.*** Photos or videos taken in the clinical area and shared on social media that compromise patient confidentiality or could negatively impact the University, or the clinical site may result in immediate dismissal from the program.
- ***Be Polite***: Realize that social media communities have their own culture, etiquette, and norms, and be respectful of them.
- ***Uphold patient confidentiality***: Do not provide confidential patient information in any manner. Do not publish or report on conversations that were meant to be private.
- ***Uphold preceptor confidentiality***: Do not post images or comments regarding preceptors without first being granted permission to do so by the preceptor.

- ***Respect copyright, fair use, and financial disclosure laws***: It is critical that you show respect for the laws governing copyright and fair use of copyrighted material owned by others, including copyrights and brands such as Emory University and the Nell Hodgson Woodruff School of Nursing logos.
- ***Avoid conflict***: Be the first to correct your own mistakes and do not alter previous posts without indicating that you have done so.
- ***Try to add value and create interes*t**: Provide worthwhile information and perspective. Use your own voice and bring your own personality to the forefront.
- ***Be vigilant***: Be aware of your association with Emory University and the NHWSN in online social networks. If you identify yourself as a NHWSN cardiovascular perfusion student, ensure your profile and related content is consistent with how you wish to present yourself with colleagues and patients.
- ***Use your personal email address - not your Emory email address***: As your primary means of identification. Just as you would not use Emory or School of Nursing letterhead when writing a personal correspondence. Do not use your Emory School of Nursing email address to express your personal views.
- ***Use your best judgment***: If you are about to publish something that makes you uncomfortable, review the suggestions above.

Ultimately you have sole responsibility for what you post to your blog or publish in any form of online social media.

Accessibility by Telephone/ Email

All students enrolled in the CV Perfusion Program must have voice mail with free space for messages available on their cell phone and/or an answering machine on their personal telephone to facilitate communication with the program faculty and staff. Students should record a professional telephone greeting in the event a faculty, clinical coordinator, or fellow student contacts them. Students must check their Emory email daily for updated program information.

Cell Phone Use Classroom/Clinical

Cell phones should not be operational in the classroom unless there is an urgent situation and specific permission from the instructor is obtained. Similarly, chat boxes or group messaging on mobile devices, computers or tablets that do not include the professor in the messaging during the lecture are not to be used without prior approval. Use of mobile devices, computers or tablets for activities not related to the lecture may result in faculty disallowing these devices in the classroom. Cell phone use is prohibited in the operating room environment for activities other than direct communication with the perfusionist or clinical site coordinator, or with the preceptor's approval to review clinical information.

Renewal of Certifications

One certification/recertification day will be granted during the program. This must be used on the day of the certification/recertification course. All other certification/recertification is to be completed on the students' own time.

GRIEVANCE AND APPEALS PROCESS

Please refer to the NHWSN Student Handbook on the website.

DISCRIMINATORY HARASSMENT POLICY

Please refer to the NHWSN Student Handbook on the website.

HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT (HIPAA)

Please refer to the NHWSN Student Handbook on the website.

FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT (FERPA)

Please refer to the NHWSN Student Handbook on the website.

BLS, ACLS AND PALS

All CV Perfusion Program students must have **Basic Life Support (BLS), Advanced Cardiac Life Support (ACLS), and Pediatric Advanced Life Support (PALS)** certification at the beginning of the program, throughout the duration of the program, and it must be renewed and in effect at the time the student presents to take the National Certification Examination. Students will present a current copy of **BLS, ACLS and PALS** recognition to the Program Administrator. Updated copies need to be provided as they are issued.

CLINICAL SUPERVISION

- Clinical supervision of perfusion students must be done in a manner that ensures patient safety. Patient safety is paramount, and it is the reason instructors need to be appropriately available.
- The program restricts clinical supervision to certified clinical perfusionists that are granted staff privileges by the institution.
- Clinical instructors and supervisors making clinical assignments for perfusion students need to make assignments that provide a ratio of supervision of students to instructor that is consistent with providing quality perfusion care to patients in a safe manner.
- The assignment of cases is to be based on the supervision ratio of students to instructors so that it is consistent with the student's entry point in the program; their current knowledge and ability; the physical status of the patient; the complexity of the perfusion and/or surgical procedure; and the experience of the clinical preceptor.
- Clinical instructors are to be immediately available to provide direction and supervision for students providing perfusion care to patients in all areas of the clinical facility.
- If the supervising instructor is not immediately available, another qualified instructor needs to be available for guidance and supervision. Reports of instructors not being appropriately available may lead to students being restricted from assignments with these individuals.

STUDENTS INTRODUCTION TO PATIENT

- In accordance with the CV Perfusion program policy, students must introduce themselves appropriately to patients.
- This is done so that adequate disclosure of their status is known by the patient receiving perfusion care.
- The introduction would include that the student would be *working with* the licensed provider(s) in the administration of perfusion services.
- The student will introduce themselves to provide disclosure of their status to the patient that will be informative, while giving the patient assurance that they will be receiving excellent perfusion care.
- This care will be provided by the Certified Clinical Perfusionist (CCP) and physician with the student *assisting*.
- The following is a suggested introduction that can be provided by the student:
  1. *"Hello Mr. Smith, my name is Sarah Roberts, I am a Perfusionist Student from Emory University, and I will be assisting John Jones, certified clinical perfusionist and Dr. Greene, surgeon, in administering your perfusion care today."*

ROLES/RESPONSIBILITIES OF INDIVIDUALS INTERACTING WITH PERFUSION STUDENTS IN THE CLINICAL AREA

Clinical Site Coordinator

Description, Qualifications, Responsibilities

- Description:

2. A Clinical Site Coordinator is identified by the perfusion group. The Clinical Site Coordinator is a resource to the student, coordinating the overall student experience. In addition, the Clinical Site Coordinator serves as a point person within the institution when issues arise.

- Qualifications:
  - Certified Clinical Perfusionist:
    - Active, practicing, current license/recertification.
    - Minimum of one year experience
    - Master's or Doctoral (preferred) prepared.
- Responsibilities:

The Clinical Site Coordinator will:

- Provide students with an orientation to the clinical site.
- Assign students to a variety of clinical experiences that are appropriate to the student's level of experience or make recommendations regarding the assignment of preceptors to the students.
- Provide mentorship to preceptors.
- Encourage the clinical faculty to complete daily student evaluations promptly.
- Maintain the confidentiality of student records.
- Act as the first level for the student in resolving clinical problems or concerns.
- Serve as a liaison between the CV Perfusion Program and clinical faculty.
- Counsel students as necessary regarding clinical performance.
- Notify Program Director of pertinent student perfusionist performance issues and suggestions for clinical improvement.
- Report inappropriate, unacceptable, or unethical student behavior to the Program Director.
- Meet with the Program Director for the annual site visit and as needed.
- Assist in keeping needed paperwork and participate in program evaluation processes.
- Assure compliance of the facility with the Standards and Guidelines for Perfusion Educational Programs.

Clinical Preceptor

Description, Qualifications, Responsibilities

- Description:

A clinical preceptor is a Certified Clinical Perfusionist who supervises the student during the administration of perfusion care from setting up equipment to the final visit of the patient in the postoperative period.

- Qualifications:
  - Certified Clinical Perfusionist:
    - Active, practicing, current, unrestricted license/recertification.
    - Demonstrated competency in their area of responsibility and knowledge of clinical teaching/learning process.
    - Desire to serve as a clinical preceptor and approval from the Clinical Site Coordinator to fulfill the role.
- Responsibilities:

Clinical preceptors will:

- Supervise the student perfusionist during the administration of perfusion services in a 1:1 ratio as the student begins. Supervisory ratios are decided by the clinical preceptor based on the student's length of time in the program, the physical status of the patient, and the complexity of the procedure. A conservative approach should be taken when determining the supervision ratios.
- Be a professional role model.
  - Demonstrate teamwork and effective interpersonal relationships.

    - Create a positive learning environment where members model professional behavior and foster student learning.
    - Participate in local, state, and national perfusion meetings with perfusion students when possible.
- Discuss the patient's physiology/pathophysiology status as it relates to perfusion care.
- Challenge student knowledge of perfusion care and encourage students to ask questions and think critically.
- Guide, facilitate, supervise, and monitor student perfusionists in achieving clinical objectives, performance of skills, and other activities to assure safe practice.
- Supervise student in the immediate post-operative care and evaluation of the patient.
- Evaluate the student's clinical performance daily using the Daily Clinical Evaluation Form and provide timely, verbal/written constructive feedback.
- Communicate and teach in a manner to maintain student privacy and dignity.
- Inform the Clinical Site Coordinator of pertinent performance issues and offer suggestions for clinical development. Communicate with Program Director as needed.
- Maintain appropriate board certification, BLS, ACLS, and PALS certification.
- Refrain from actions that could be interpreted as discriminating, harassing, or prejudicial.

FORMS

1. Expected Level of Student Performance
2. Acknowledgement Receipt of Handbook
3. Agreement to Abide by Code of Ethics for the Perfusionist
4. Pediatric Observation Evaluation
5. Semester 1 & 2 Semester Observation Evaluation
6. Semesters 3, 4, 5 Device Use Evaluation
7. Semesters 3, 4, 5 Set-up Priming Evaluation
8. Semesters 3, 4, 5 Set-up Pump Standby Evaluation
9. Semesters 3, 4, 5 Surgical Procedure Evaluation

Expected Level of Student Performance

Used to guide daily/rotation clinical evaluation ratings

Beginner	Intermediate	Competent
Semester 1-2	**Semester 3-4**	**Semester 5**
Patient Safety • Maintains vigilance throughout • Room set-up **with assistance** • Completes Checklists accurately and completely within required time **with assistance** • Perfusion equipment check **with assistance** • Performs duties without compromising sterility using universal precaution • Safely operates equipment **with assistance** • Calculates needed parameters with accuracy and in a timely manner **with assistance**	**Patient Safety** • Maintains vigilance throughout • Room set-up **with minimal assistance** • Completes Checklists accurately and completely within required time **with minimal assistance** • Performs duties without compromising sterility using universal precaution **with minimal or no assistance** • Perfusion equipment check **with minimal assistance** • Universal precaution and asepsis always used **with minimal or no assistance** • Safely operates equipment **with minimal assistance** • Calculates needed parameters with accuracy and in a timely manner **with minimal assistance**	**Patient Safety** • Maintains vigilance throughout • Room set-up **with minimal or no assistance** • Completes Checklists accurately and completely within required time **with minimal or no assistance** • Performs duties without compromising sterility using universal precaution **with minimal or no assistance** • Perfusion equipment check **with minimal or no assistance** • Universal precaution and asepsis always used **with minimal or no assistance** • Safely operates equipment **with minimal or no assistance** • Calculates needed parameters with accuracy and in a timely manner **with minimal or no assistance**
Decision-Making & Critical Thinking • Obtains complete and accurate history, laboratory, monitoring data and demonstrates knowledge of major/minor issues **with assistance** • Formulates an individual perfusion care plan **with assistance** • Exhibits knowledge of surgeon, anesthesia and perfusion protocols **with assistance** • Identifies the perfusion care sequence **for basic cases** • Demonstrates accurate understanding of drugs used during perfusion procedures **with assistance** • Interprets and utilizes data from monitoring devices **with assistance** • Identifies equipment malfunction and machine/patient interface complications, and takes steps to correct the problem **with assistance**	**Decision-Making & Critical Thinking** • Obtains complete and accurate history, laboratory, monitoring data and demonstrates knowledge of major/minor issues **with minimal assistance** • Formulates an individual in depth perfusion care plan **with minimal assistance** • Exhibits knowledge of surgeon, anesthesia, and perfusion protocols **with minimal assistance** • Accurately administers and monitors drugs used during perfusion procedures **with minimal assistance** • Identifies the perfusion care sequence for all types of cases **with minimal assistance** • Interprets and utilizes data from monitoring devices **with minimal assistance**	**Decision-Making & Critical Thinking** • Gathers health history, laboratory, monitoring data, and summarizes clinical data **with very minimal or no assistance** • Formulates an individual in depth perfusion care plan and adjusts the initial plan based on sound evidence **with minimal or no assistance** • Exhibits knowledge of surgeon, anesthesia, and perfusion protocols **with minimal or no assistance** • Identifies the sequence of perfusion care **for all types of cases** • Decides on use of adjunct monitors **with minimal or no assistance** • Synthesizes data from monitoring devices, identifying, and prioritizing problems even in complex-multi problem cases **with minimal or no assistance**

Beginner	Intermediate	Competent
Semester 1-2	**Semester 3-4**	**Semester 5**
	• Identifies equipment malfunction and machine/patient interface complications and takes steps to correct the problem **with minimal assistance**	• Accurately initiates and monitors drugs during perfusion procedures **with minimal or no assistance**. • Identifies equipment malfunction and machine/patient interface complications and takes steps to correct the problem **with minimal or no assistance**
Periperfusion Management • Demonstrates appropriate choice of equipment and techniques **with little assistance** • Has supplies available and works efficiently **with assistance** • Initiation and management of a variety of perfusion services following appropriate steps of protocol **with assistance** • Consistently maintains vigilance to a safe operating level **with assistance** • Monitors patient data prior to initiation of perfusion services **with assistance** • Initiates alarms and safety devices at appropriate times during the procedure **with assistance** • Manages perfusion care for a variety of patients, surgical procedures using research and EBP **with assistance** • Proficient in performance of anticoagulant management and ongoing assessment **with assistance** • Assessment when changes are needed to insure appropriate delivery **with assistance** • Ability to terminate perfusion services within the time expected by the surgical team without	**Periperfusion Management** • Demonstrates appropriate choice of equipment and techniques for patient perfusion. • Has supplies available and works efficiently **with minimal assistance** • Initiation and management of a variety of perfusion services following appropriate steps of protocol **with minimal assistance** • Consistently maintains vigilance to a safe operating level **with minimal assistance** • Monitors patient data prior to initiation of perfusion services **with minimal assistance** • Initiates alarms and safety devices at appropriate times during the procedure **with minimal assistance** • Manages perfusion care for a variety of patients, surgical procedures using research and EBP **with minimal assistance** • Proficient in performance of anticoagulant management and ongoing assessment **with minimal assistance** • Quick initiation when changes are needed to insure appropriate delivery **with minimal assistance**	**Periperfusion Management** • Demonstrates appropriate choice and equipment and techniques for patient perfusion • Has supplies available and works efficiently • Initiation and management of a variety of perfusion services following appropriate steps of protocol **with minimal or no assistance** • Consistently maintains vigilance to a safe operating level. • Monitors patient data prior to initiation of perfusion services **minimal or no assistance** • Initiates alarms and safety devices at appropriate times during the procedure **with minimal or no assistance** • Manages perfusion care for a variety of patients, surgical procedures using research and EBP **with minimal or no assistance** • Proficient in performance of anticoagulant management and ongoing assessment **with minimal or no assistance** • Quick initiation when changes are needed to insure appropriate delivery **with minimal or no assistance**

Beginner	Intermediate	Competent
Semester 1-2	**Semester 3-4**	**Semester 5**
considerable change in patient status/hemodynamics **with assistance** • Properly maintains perfusion record and charts appropriately per protocol **with assistance** • Demonstrates appropriate cultural patient care **with assistance**	• Ability to terminate perfusion services within the time expected by the surgical team without considerable change in patient status/hemodynamics **with minimal assistance** • Properly maintains perfusion record and charts appropriately per protocol **with minimal assistance** • Demonstrates appropriate cultural patient care **with minimal assistance**	• Ability to terminate perfusion services within the time expected by the surgical team without considerable change in patient status/hemodynamics **with minimal or no assistance** • Properly maintains perfusion record and charts appropriately per protocol • Demonstrates appropriate cultural patient care **with minimal or no assistance**
Professional Role • Demonstrate a professional attitude • Prompt, punctual, reliable, and dependable • Takes initiative in case management • Seeks opportunities for learning • Demonstrates preparedness for clinical assignments • Follows institutional policies and procedures • Realizes limitations • Professional to patients and staff	**Professional Role** • Demonstrate a professional attitude • Prompt, punctual, reliable, and dependable • Takes initiative in case management • Seeks opportunities for learning • Demonstrates preparedness for clinical assignments and verbalizes knowledge of perfusion processes • Follows institutional policies and procedures • Helps teach given the opportunity • Realizes limitations • Professional to patients and staff	**Professional Role** • Demonstrate a professional attitude • Prompt, punctual, reliable, and dependable • Takes initiative in case management • Able to bring new knowledge to clinical setting • Demonstrates preparedness for clinical assignments, verbalizes knowledge of perfusion processes and able to deviate from initial perfusion plan **with minimal assistance** • Follows institutional policies and procedures • Helps teach given the opportunity • Realizes limitations • Professional to patients and staff
Communication Skills • Communicates and collaborates effectively with the healthcare team • Communicates effectively with the patient and family	**Communication Skills** • Communicates and collaborates effectively with the healthcare team • Communicates effectively with the patient and family	**Communication Skills** • Communicates and collaborates effectively with the healthcare team • Communicates effectively with the patient and family

With assistance: Needs the advice and/or support of the preceptor at least 50% of the time to provide safe anesthesia care.

Minimal assistance: Needs the advice and/or support of the preceptor less than 50% of the time to provide safe perfusion care.

No Assistance: Is able to critically think and act appropriately on own to provide safe perfusion care.

ACKNOWLEDGEMENT: Receipt of Handbook

The Cardiovascular Perfusion Program Student Handbook is for students entering in August of 2023. This Handbook was discussed during orientation to the program, and I am aware this Handbook along with the Nursing Student Handbook and Nursing Catalog are posted on the School of Nursing Webpage and available for current students at http://nursing.emory.edu/. I have had the opportunity to review and discuss its contents and I agree, as a student enrolled in this program, to adhere to the policies and guidelines set forth. University policies are found on the main Emory website by searching http://www.emory.edu/home/index.html .

I am aware that simulation learning is a required component of the program, and all instructional direction, discussion, practice, and testing are confidential.

I agree to not share any information used during the simulation session with anyone. I understand that I may be videotaped during these sessions and that it may be used for educational purposes.

I agree to comply with student responsibilities as stated in the Student Code of Conduct.

I agree to comply with Social Media Policy guidelines.

I am aware that program faculty reserves the right to revise all information in this handbook at its discretion and to make reasonable changes in requirements to improve the quality of education or enhance the program.

_____ _____

Student Signature Date

_____

Student Name (Print)

AGREEMENT TO ABIDE BY: CODE OF ETHICS FOR THE CERTIFIED CLINICAL PERFUSIONIST

I, _____, have read and agree to abide by the Nell Hodgson Woodruff School of Nursing and Professional Code of Ethics. I will also be honest and forthright in my scholarly and professional duties, using ethically sound decision-making processes in my perfusion practice and academic work. Furthermore, I will take responsibility for my actions in the clinical and didactic areas, and will solicit assistance from my peers, instructors, and mentors to hold myself accountable.

Signature

Date

Institution:	Emory University - Nell Hodgson Woodruff School of Nursing
Student:	
Preceptor:	
Site/Facility:	
Date:	()

YOU ARE CURRENTLY IN PREVIEW MODE - THE EVALUATION CANNOT BE SUBMITTED. Start Evaluation

Pediatric Observation Evaluation

Section Weight: 70%

Preparations

		Excellent (4)	Satisfactory (3)	Marginal (2)	Unsatisfactory (1)	Critical Mistake (0)	N/A
Review Case Equipment Check with perfusionist: ensuring all equipment and monitors are functioning appropriately	Final Required	○	○	○	○	○	○
Calculate BSA & estimated blood volume	Final Required	○	○	○	○	○	○
Determine wt.-based flow	Final Required	○	○	○	○	○	○
Determine BSA-based flow ranges	Final Required	○	○	○	○	○	○
Determine arterial line, pump boot, and venous line sizes or tubing pack sizes	Final Required	○	○	○	○	○	○
Determine correct oxygenator	Final Required	○	○	○	○	○	○

Determine cannula sizes: arterial and venous	**Final** Required	○	○	○	○	○	○
Calculate prime drug dosages Heparin, NaHCO3, Solumedrol, mannitol, CaCl2, etc.	**Final** Required	○	○	○	○	○	○
Calculate how much blood to add to the prime	**Final** Required	○	○	○	○	○	○
Identifies patient cardiac anomaly and discuss pathophysiology	**Final** Required	○	○	○	○	○	○
Surgical plan of care. Patient Evaluation/Work-up (Obtains complete and accurate history, including labs, tests, and medication history	**Final** Required	○	○	○	○	○	○
Discuss acid base management	**Final** Required	○	○	○	○	○	○

Section Weight: 30%

Professional Role

		Excellent (4)	Satisfactory (3)	Marginal (2)	Unsatisfactory (1)	Critical Mistake (0)	N/A
Demonstrates a professional attitude throughout clinical experience (not on cell unless case related)	**Final** Required	○	○	○	○	○	○
Exhibits professionalism & courtesy to patients, team members & staff	**Final** Required	○	○	○	○	○	○

Evaluation Score Summary

Title:	Score	Weight	Adj. Score	
Primary Evaluation	0.00	100.00%		Required

Back to Top

Institution:	Emory University - Nell Hodgson Woodruff School of Nursing
Student:	
Preceptor:	
Site/Facility:	
Date:	()

YOU ARE CURRENTLY IN PREVIEW MODE - THE EVALUATION CANNOT BE SUBMITTED. Start Evaluation

Semester 1 & 2 Observation Evaluation

Section Weight: 100%

Peri-operative Observation Experience

		Excellent (4)	Satisfactory (3)	Marginal (2)	Unsatisfactory (1)	Critical Mistake (0)	N/A
The student is on-time, prepared, and engaged in the observational experience.	Final Required	○	○	○	○	○	○
The student asks appropriate questions and/or provides answers to the best of their knowledge when questioned.	Final Required	○	○	○	○	○	○
The student participates in the (non-direct) CPB activities as directed, and according to their skill level (ex. Circuit set-up/break down, priming, ABG/ACT performance, etc).	Final Required	○	○	○	○	○	○
The student exhibits professionalism & courtesy to patients, team members & staff.	Final Required	○	○	○	○	○	○

Evaluation Score Summary

Title:	Score	Weight	Adj. Score	
Primary Evaluation	0.00	100.00%		Required

Back to Top

Institution:	Emory University - Nell Hodgson Woodruff School of Nursing
Student:	
Preceptor:	
Site/Facility:	
Date:	()

YOU ARE CURRENTLY IN PREVIEW MODE - THE EVALUATION CANNOT BE SUBMITTED. Start Evaluation

Device Use Evaluation (ECMO / VAD)

How to apply scoring

4 – Excellent

3 – Satisfactory

2 – Marginal

1 – Unsatisfactory

0 – Critical Mistake

N/A – Not Applicable

Section Weight: 100%

Preparation for Bypass

		Excellent - 4	Satisfactory - 3	Marginal - 2	Poor - 1	Critical Mistake	N/A	
Equipment Check (Demonstrates familiarity with device in use, safety functions – as applicable, and purpose for device)	Final Required	○	○	○	○	○	○	Enter comments for Final
Completes checklists, as applicable, for specific device in use	Final Required	○	○	○	○	○	○	Enter comments for Final
Identifies proper plan of care for specific device in use	Final Required	○	○	○	○	○	○	Enter comments for Final
Initiation of support (Performs the sequence of MCS initiation properly and safely, per preceptor and/or MD directions)	Final Required	○	○	○	○	○	○	Enter comments for Final
Monitoring (provides continuous monitoring of MCS device, as appropriate,	Final Required	○	○	○	○	○	○	Enter comments for Final

with adequate knowledge of hemodynamics and support goals)								

Evaluator Comments

Comments :

Enter comments

Evaluation Score Summary

Title:	Score	Weight	Adj. Score	
Primary Evaluation	0.00	100.00%		Required

Back to Top

Institution:	Emory University - Nell Hodgson Woodruff School of Nursing
Student:	
Preceptor:	
Site/Facility:	
Date:	()

YOU ARE CURRENTLY IN PREVIEW MODE - THE EVALUATION CANNOT BE SUBMITTED. Start Evaluation

SET-UP/ Priming EVALUATION

Section Weight: 15%

Preparations

		Excellent (4)	Satisfactory (3)	Marginal (2)	Unsatisfactory (1)	Critical Mistake (0)	N/A
Case Equipment Check (Demonstrates familiarity of safety functions of all equipment and monitors, and checks that all are functioning appropriately with assistance, gathers necessary supplies and medications)	Final Required	○	○	○	○	○	○
Identifies proper surgical plan of care	Final Required	○	○	○	○	○	○
Patient Evaluation/Work-up (Obtains complete and accurate history, including labs, tests, and medication history, patient calculations)	Final Required	○	○	○	○	○	○

Section Weight: 60%

Set-Up

		Excellent (4)	Satisfactory (3)	Marginal (2)	Unsatisfactory (1)	Critical Mistake (0)	N/A
Priority of set-up and order of importance (timing of task)	Final Required	○	○	○	○	○	○
Uses aseptic technique and proper mechanics of set-up	Final Required	○	○	○	○	○	○
Tubing installed in correct raceway direction	Final Required	○	○	○	○	○	○
No potential kinks in boot line	Final Required	○	○	○	○	○	○
Recirculation line properly attached	Final Required	○	○	○	○	○	○
AV loop free of kinks or tangles	Final Required	○	○	○	○	○	○
Oxygen and anesthetic lines tested and connected	Final Required	○	○	○	○	○	○
Set-Up Cardioplegia config correctly for 4:1 delivery & occlusion or MPS System set up	Final Required	○	○	○	○	○	○
Set-up cardioplegia transducer properly	Final Required	○	○	○	○	○	○
Check Occlusion on Pump Suckers/Vent	Final Required	○	○	○	○	○	○

Section Weight: 15%

Priming

		Excellent (4)	Satisfactory (3)	Marginal (2)	Unsatisfactory (1)	Critical Mistake (0)	N/A
Placement of clamps for priming	Final Required	○	○	○	○	○	○
Closed the necessary purges for preparation of priming	Final Required	○	○	○	○	○	○
Zeroed Pressure Transducers in Preparation for Priming	Final Required	○	○	○	○	○	○
Correctly sets the pressure limits/ alarms	Final Required	○	○	○	○	○	○
Dropped fluid into reservoir properly	Final Required	○	○	○	○	○	○
Primed Pump Header (cone)	Final Required	○	○	○	○	○	○
Check Occlusion (roller head)	Final Required	○	○	○	○	○	○
Primed Oxygenator & Purge line	Final Required	○	○	○	○	○	○
Primed the pressure transducer line	Final Required	○	○	○	○	○	○
Primed Tubing (AV Loop) De-airing	Final Required	○	○	○	○	○	○

Primed Arterial Filter/ deair filter	**Final** Required	○	○	○	○	○	○

Primed cardioplegia and added KCL	**Final** Required	○	○	○	○	○	○

Section Weight: 10%

Professional Role

		Excellent (4)	Satisfactory (3)	Marginal (2)	Unsatisfactory (1)	Critical Mistake (0)	N/A
Demonstrates a professional attitude throughout clinical experience (not on cell unless case related)	**Final** Required	○	○	○	○	○	○
Exhibits professionalism & courtesy to patients, team members & staff	**Final** Required	○	○	○	○	○	○

Evaluation Score Summary

Title:	Score	Weight	Adj. Score	
Primary Evaluation	0.00	100.00%		Required

Back to Top

Institution:	Emory University - Nell Hodgson Woodruff School of Nursing
Student:	
Preceptor:	
Site/Facility:	
Date:	()

YOU ARE CURRENTLY IN PREVIEW MODE - THE EVALUATION CANNOT BE SUBMITTED. Start Evaluation

SET-UP/ Pump Standby EVALUATION

Section Weight: 15%

Preparations

		Excellent (4)	Satisfactory (3)	Marginal (2)	Unsatisfactory (1)	Critical Mistake (0)	N/A
Case Equipment Check (Demonstrates familiarity of safety functions of all equipment and monitors, and checks that all are functioning appropriately with assistance, gathers necessary supplies and medications)	Final Required	○	○	○	○	○	○
Identifies proper surgical plan of care	Final Required	○	○	○	○	○	○
Patient Evaluation/Work-up (Obtains complete and accurate history, including labs, tests, and medication history, patient calculations)	Final Required	○	○	○	○	○	○

Section Weight: 60%

Set-Up

		Excellent (4)	Satisfactory (3)	Marginal (2)	Unsatisfactory (1)	Critical Mistake (0)	N/A
Priority of set-up and order of importance (timing of task)	Final Required	○	○	○	○	○	○
Uses aseptic technique and proper mechanics of set-up	Final Required	○	○	○	○	○	○
Tubing installed in correct raceway direction	Final Required	○	○	○	○	○	○
No potential kinks in boot line	Final Required	○	○	○	○	○	○
Recirculation line properly attached	Final Required	○	○	○	○	○	○
AV loop free of kinks or tangles	Final Required	○	○	○	○	○	○
Oxygen and anesthetic lines tested and connected	Final Required	○	○	○	○	○	○
Placement of clamps for priming	Final Required	○	○	○	○	○	○
Set-Up Cardioplegia config correctly for 4:1 delivery & occlusion or MPS System set up	Final	○	○	○	○	○	○

Set-Up Cardioplegia config correctly for 4:1 delivery & occlusion or MPS System set up	**Final**	○	○	○	○	○	○
Set-Up Cardioplegia config correctly for 4:1 delivery & occlusion or MPS System set up	**Final** Required	○	○	○	○	○	○
Cardioplegia transducer system set-up properly	**Final** Required	○	○	○	○	○	○
Check Occlusion on Pump Suckers/Vent	**Final** Required	○	○	○	○	○	○
Completes checklists accurately within required time	**Final** Required	○	○	○	○	○	○

Section Weight: 15%

MISC

		Excellent (4)	**Satisfactory (3)**	**Marginal (2)**	**Unsatisfactory (1)**	**Critical Mistake (0)**	**N/A**
Review the checklist with the perfusionist	**Final** Required	○	○	○	○	○	○
Ability to ask questions when unsure	**Final** Required	○	○	○	○	○	○
Blood Gas and ACT performance and interpretation	**Final** Required	○	○	○	○	○	○
Communication and Surgical Awareness	**Final** Required	○	○	○	○	○	○

Appropriate processing, and transfer of Cell Saver product.	**Final** Required	○	○	○	○	○	○

Section Weight: 10%

Professional Role

		N/A	Excellent (4)	Satisfactory (3)	Marginal (2)	Unsatisfactory (1)	Critical Mistake (0)
Demonstrates a professional attitude throughout clinical experience (not on cell unless case related)	**Final** Required	○	○	○	○	○	○
Exhibits professionalism & courtesy to patients, team members & staff	**Final** Required	○	○	○	○	○	○

Evaluation Score Summary

Title:	Score	Weight	Adj. Score	
Primary Evaluation	0.00	100.00%		Required

Back to Top

Institution:	Emory University - Nell Hodgson Woodruff School of Nursing
Student:	
Preceptor:	
Site/Facility:	
Date:	()

YOU ARE CURRENTLY IN PREVIEW MODE - THE EVALUATION CANNOT BE SUBMITTED. Start Evaluation

Surgical Procedure Evaluation

How to apply scoring

4 – Excellent

3 – Satisfactory

2 – Marginal

1 – Unsatisfactory

0 – Critical Mistake

N/A – Not Applicable

Section Weight: 30%

Preparation for Bypass

		Excellent - 4	Satisfactory - 3	Marginal - 2	Poor - 1	Critical Mistake	N/A	
Room Equipment Check (monitors, medications, supplies verified)	Final Required	○	○	○	○	○	○	Enter comments for Final
Case Equipment Check (Demonstrates familiarity of safety functions of all equipment and monitors, and checks that all are functioning appropriately with assistance, gathers necessary supplies)	Final Required	○	○	○	○	○	○	Enter comments for Final
Completes checklists accurately within required time	Final Required	○	○	○	○	○	○	Enter comments for Final
Identifies proper surgical plan of care	Final Required	○	○	○	○	○	○	Enter comments for Final

Uses aseptic technique and proper mechanics of set-up	**Final** Required	○	○	○	○	○	○	Enter comments for Final
Patient Evaluation/Work-up (Obtains complete and accurate history, including labs, tests, and medication history, patient calculations)	**Final** Required	○	○	○	○	○	○	Enter comments for Final

Section Weight: 50%

Conduct and Termination of Bypass

		Excellent - 4	**Satisfactory - 3**	**Marginal - 2**	**Poor - 1**	**Critical Mistake**	**N/A**	
Initiation of Bypass (Performs the sequence of bypass initiation properly and safely with safety devices)	**Final** Required	○	○	○	○	○	○	Enter comments for Final
Temperature Control	**Final** Required	○	○	○	○	○	○	Enter comments for Final
Blood Gas and ACT performance and interpretation	**Final** Required	○	○	○	○	○	○	Enter comments for Final
Maintenance of Reservoir level and CPB flow (Initiates and manages fluid administration and blood product necessity)	**Final** Required	○	○	○	○	○	○	Enter comments for Final
Cardioplegia (delivery, control, timing, and knowledge)	**Final** Required	○	○	○	○	○	○	Enter comments for Final
Uses medications appropriately and as directed by preceptor and MD	**Final** Required	○	○	○	○	○	○	Enter comments for Final
Sucker/Vent Control	**Final** Required	○	○	○	○	○	○	Enter comments for Final
Communication and Surgical Awareness	**Final** Required	○	○	○	○	○	○	Enter comments for Final

Maintenance of the Perfusion Record/Chart	**Final** Required	○	○	○	○	○	○	Enter comments for Final
Weaning and Termination of Bypass (Terminates bypass within the time expected by the surgical team, maintaining hemodynamic stability)	**Final** Required	○	○	○	○	○	○	Enter comments for Final

Section Weight: 10%

Post-Bypass

		Excellent - 4	**Satisfactory - 3**	**Marginal - 2**	**Poor - 1**	**Critical Mistake**	**N/A**	
Appropriate awareness, processing, and transfer of Cell Saver product.	**Final** Required	○	○	○	○	○	○	Enter comments for Final
Performance of ECC break-down, cleaning, and new set-up (efficiency, timing, and accuracy)	**Final** Required	○	○	○	○	○	○	Enter comments for Final

Section Weight: 10%

Professional Role

		Excellent - 4	**Satisfactory - 3**	**Marginal - 2**	**Poor - 1**	**Critical Mistake**	**N/A**	
Demonstrates a professional attitude throughout clinical experience	**Final** Required	○	○	○	○	○	○	Enter comments for Final
Exhibits professionalism & courtesy to patients, team members & staff	**Final** Required	○	○	○	○	○	○	Enter comments for Final

Evaluator Comments

Comments :

Enter comments

Evaluation Score Summary

Title:	Score	Weight	Adj. Score	
Primary Evaluation	0.00	100.00%		Required

Back to Top

Exemplar:

PRE-BYPASS Checklist

- [ ] PATIENT
  - [ ] Chart reviewed
  - [ ] Procedure reviewed
- [ ] STERILITY
  - [ ] Components checked for package integrity/expiration date
  - [ ] Heat exchanger(s) leak-tested
- [ ] PUMP
  - [ ] Pump direction correct
  - [ ] Speed controls operational
  - [ ] Roller heads smooth and quiet
  - [ ] Occlusions set
  - [ ] Flow meter in correct direction / calibrated
  - [ ] Flow rate indicator correct for patient and/or tubing size
  - [ ] Holders secure
- [ ] CARDIOPLEGIA
  - [ ] Solution checked for composition/exp date
  - [ ] System de-bubbled / leak-free
- [ ] TEMPERATURE CONTROL
  - [ ] Water source connected and functional
- [ ] GAS SUPPLY
  - [ ] Gas line securely connected
  - [ ] Flow meter / blender functional
  - [ ] Hoses leak-free
  - [ ] Gas exhaust unobstructed
- [ ] LINES/PUMP TUBING
  - [ ] Connections secure
  - [ ] Tubing direction traced and correct
  - [ ] No kinks noted
  - [ ] One-way valve(s) in correct direction
  - [ ] De-bubbled / leak-free
  - [ ] Patency of arterial line / cannula verified
- [ ] MONITORING
  - [ ] Temperature probes in place and calibrated
  - [ ] Pump pressure monitors calibrated
  - [ ] In-line amd/or on-line sensors calibrated
  - [ ] Oxygen analyzer calibrated
- [ ] ELECTRICAL
  - [ ] Power cord(s) securely connected
- [ ] SAFETY MECHANISMS
  - [ ] Operational and engaged
  - [ ] Arterial filter/bubble trap de-bubbled
  - [ ] Cardiotomy reservoir vented
- [ ] ANTICOAGULATION
  - [ ] Heparin time and dose verified
  - [ ] Anticoagulation tested and reported
- [ ] SUPPLIES
  - [ ] Tubing clamps available
  - [ ] Drugs available and properly labeled
  - [ ] Solutions available
  - [ ] Blood available
  - [ ] Sampling syringes / lab tubes available
- [ ] BACK-UP
  - [ ] Hand cranks available
  - [ ] Emergency lighting available
  - [ ] Duplicate circuit components available

Signature: _____

Time _____

ABBREVIATIONS

ALP	Arterial line pressure
A / V	Arterial / venous
Ao	Aortic root
SVG	Saphenous vein graft
CS	Coronary sinus
OS	Coronary ostia

UNITS OF MEASURE

Flow	L/min
Pressures	mmHg
FiO2	percent
Anesthesia	percent
SvO2	percent
Bicarb	mEq
Heparin	units
Mannitol	grams
CaCl	grams
Lidocaine	mgrams

CARDIOPLEGIA FORMULAE

	[example]
HIGH	Plegisol (1000cc) 100 mEq KCL 20 mEq Bicarb 45 u Insulin
LOW	Plegisol (1000cc) 50 mEq KCl 20 mEq Bicarb 45 u Insulin

NORMAL VALUES (per clinical lab)

pH Art	7.35 - 7.45				
pH Ven	7.32 - 7.42				
paO2	100-250	mmHg	K+	3.5 - 5.0	mEq/L
pvO2	35 - 45	mmHg	Glucose	90 - 120	gm/dl
paCO2	35 - 45	mmHg	iCalcium	0.9 - 1.1	mOsm
pvO2	40 - 50	mmHg	Sodium	135 - 145	mEq/L
HCO	22 - 26	mEq/L	non-Hep ACT	90 - 110	sec
BE	-2		Hematocrit	38 - 42	percent
SaO2	90 - 100	percent		(per protocol)	
SvO2	60 - 90	percent	Target Hep ACT	> 480	sec

Exemplar of Perfusion Record

PERFUSION RECORD

DATE	OR#	CASE#	PAGE of

PRE-OP DIAGNOSIS	HISTORY

PROCEDURE	ALLERGY:

PRE-OP LABS	BUN	mg/dl	CREAT	mg/dl	ALBUMIN	gm/dl		
	aPT	sec	aPTT	sec	PLATELETS	k/ul		

PATIENT DATA	HT	CM	WT	KG	BSA	M2	GENDER	M	F	AGE	BLOOD TYPE

PERSONNEL

PERFUSIONIST	PERFUSIONIST	SURGEON	ANESTHESIOLOGIST

DISPOSABLES	MODEL	SERIAL NO
OXYGENATOR		
VENOUS RES		
CARDIOTOMY RES		
TUBING PACK		
ARTERIAL FILTER		
CENTRIFUGAL PUMP		
AUTOTRANSFUSION SET		
CARDIOPLEGIA SET		
HEMOCONCENTRATOR		

DISPOSABLES	MODEL	SIZE
ART CANNULA		
VEN CANNULA		
VEN CANNULA		
CARDIOPLEGIA CANN		
VENT		

EQUIPMENT	MODEL	SERIAL NO / I.D. NO
PUMP CONSOLE		
ARTERIAL PUMP		
HEATER/COOLER		
AUTOTRANS DEVICE		
ACT ANALYZER		
BLOOD GAS ANALYZER		
O2 ANALYZER		

IABP		**VAD**		**ECLS**		**INOTROPES**	
PRE-CPB		YES		YES		YES	
POST-CPB		NO		NO		NO	
NO							

CARDIOPLEGIA

TIME	TEMP oC		SITE				PRESSURE mm Hg		RATIO	FORMULA			AMOUNT cc	COMMENTS
	infusion	myo	Ao	SVG	CS	OS	line	sinus		Hi	Lo	0		

SUMMARY

Pump Time	X-clamp time	Cell Salvage vol	Field 1	Field 2	Field 3	Field 4

Signature:

Checklist complete ☐ Time _____

Evaluation/Changes to Plan:

Potential Complications of Perfusion Care and Surgery:

Needed Interventions if Complications Occur:

Perfusion Hand-Off Checklist

AmSECT : Perfusion Checklist

This is a guideline, which Perfusionists are encouraged to modify to accommodate differences in circuit design and variations in institutional clinical practice.

Perfusion Checklist
Patient ID _____

Check each item when completed, sign and date. If not applicable, draw line through**. Bold italicized items for expedited set-up.**

PATIENT
Patient identity confirmed
Procedure confirmed
Blood type, antibodies confirmed
Allergies checked
Blood bank number confirmed
Medical record number confirmed
Chart reviewed

STERILITY/CLEANLINESS
Components checked for package integrity/expiration
Equipment clean
Heat exchanger(s) leak-tested

PUMP
Occlusion(s) set
Speed controls operational
Flow meter in correct direction and calibration
Flow rate indicator correct for patient and/or tubing size
Rollers rotate freely
Pump head rotation smooth and quiet
Holders secure
Servoregulated connections tested

ELECTRICAL
Power cord(s) connection(s) secure
Servoregulation connections secure
Batteries charged and operational

CARDIOPLEGIA
System debubbled and operational
System leak-free after pressurization
Solution(s) checked

GAS SUPPLY
Gas line(s) and filer connections secure
Gas exhaust unobstructed
Source and appropriate connections of gas(es) confirmed
Flow meter / gas blender operational
Hoses leak-free
Anesthetic gas scavenge line operational

COMPONENTS
System debubbled and operational
Connections / stopcocks / caps secure
Appropriate lines claimed / shunts closed
Tubing direction traced and correct
Patency of arterial line / cannula confirmed
No tubing kinks noted
One-way valve(s) in correct direction
Leak-free after pressurization

SAFETY MECHANISMS
Alarms operational, audible and engaged
Arterial filter / bubble trap debubbled
Cardiotomy / hardshell venous reservoir(s) vented
Vent(s) tested
Venous line occluder(s) calibrated and tested
Devices securely attached to console

ASSISTED VENOUS RETURN
Cardiotomy positive-pressure relief valve present
Negative- pressure relief valve unobstructed
Vacuum regulator operational

MONITORING
Circuit / patient temperature probes placed
Pressure transducers / monitors calibrated and on proper scales
Inline sensors calibrated
Oxygen analyzer calibrated

ANTICOAGULATION
Heparin time and dose confirmed
Anticoagulation tested and reported

TEMPERATURE CONTROL
Water source(s)connected and operational
Temperature range(s) tested and operational
Water lines unobstructed

SUPPLIES
Tubing clamps available
Drugs available and properly labeled
Solutions available
Blood products available
Sampling syringes / laboratory tubes available
Anesthetic vaporizer correct
Vaporizer operational and filled

BACKUP
Hand cranks available
Duplicate circuit components / hardware available
Emergency lighting / flashlight available
Backup full oxygen tank with flow meter available
Ice available

EMERGENT RESTART OF BYPASS
Heparin time and dose confirmed

Components debubbled
Gas flow confirmed
Alarms reengaged
Water source(s) connected

TERMINATION CHECKLIST
Venous assist off / cardiotomy / venous reservoirs vented
Shunt(s) closed
Vent(s) clamped / removed

POSTBYPASS CHECKLIST
Announce bypass terminated
Arterial and venous lines clamped
Arterial circuit bubble-free before transfusing perfusate
Pump suction(s) off

Comments:

Signature: _____

Date: _____ Time: _____

These perfusion checklists, or a reasonable equivalent, should be used in perfusion practice. This is a guideline, which Perfusionists are encouraged to modify to accommodate difference in circuit design and variations in institutional clinical practice. Users should refer to manufacturers' information, including Instructions for Use, for specific procedures and/or precautions. AmSECT disclaims any and all liability and responsibility for injury and damages resulting from following this suggested checklist. Origination 1990; revision 2004 by AmSECT Quality Committee.

Emory
CPB Handoff Checklist

Surgeon:
Case:
Relevant patient Hx/ Re-do?
Pertinent info during call to order:
Cannula selection/sites:
Unusual labs/Last ACT:
Full Flow/BSA:
Cooling to , rewarming?
Pump suckers/LV vent/Aortic tack (color)
Cardioplegia delivery route(s)/Duration of redosing?:
Cell saver units on pump/post CPB:
Relevant perioperative issues-blood use?
Fluid in/out on CPB:
Charges/Database/Cardiology ref. sheet complete?

[redacted]

EMORY HEALTHCARE

ECMO transport-handoff checklist

Attending physician
Pt. History
Allergies:
Type of ECMO: VA/VV/VAV
Cannula size/sites:
Last ABG/ACT:
Heparin protocol: low/high
Sweep rate:
O2 line connected and flow confirmed/Cardiohelp plugged in:
Clot check (oxygenator, connector sites, cannula)
Clamps available:
Attempts at weaning?
i-view up and charted:
Yellow cap on oxygenator ON/OFF

EMORY HEALTHCARE

RESOURCES

American Society of Extracorporeal Technology, Perfusion Clinical Resources