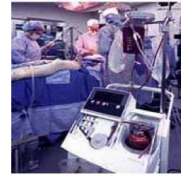




## Virginia Perfusion Society

Inova Fairfax Hospital, Cardiovascular Perfusion  
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David Fitzgerald, CCP President  
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Perfusionists are allied health care professionals who are responsible for operating the heart-lung machine during open-heart surgical procedures, such as Coronary Artery Bypass Grafting (CABG), valve repair/replacement, organ transplants, and other major cardiovascular or thoracic procedures. Additionally Perfusionists perform many additional tasks including autologous blood salvage, chemotherapeutic interventions and hemofiltration. Perfusionists perform highly specialized tasks in order to support their patient while they are on the heart-lung machine, including the administration of drugs, blood, and anesthetic medications to maintain a patient's natural physiologic state.

There are 90 perfusionists working at 19 hospitals with open-heart programs, plus the VA hospital in Richmond. Sixteen of the 19 participate in the Virginia Cardiac Surgery Quality Initiative (VSCQI). Several use a national perfusion service contact company to staff their departments. Based on VSCQI reporting data, every year at least 5,500 to 6,000 adults and children undergo an open-heart or another major cardiovascular surgical procedure. All of these procedures must involve a Perfusionist. Likewise, Perfusionists care for patients who require other types of support such as Extracorporeal Membrane Oxygenation (ECMO), Cardiopulmonary Support (CPS) and Ventricular Assistant Devices (VAD) to name a few.

Perfusionists when operating these machines, often times independent of physician consultation, make decisions. Before an open-heart surgical case, an anesthesiologist will provide and recommend the anesthetic agents to be administered by the perfusionist via the heart-lung machine. During a surgical procedure the surgeon gives general direction to a perfusionist based on what the surgeon is trying to accomplish while he/she is concentrating on their portion of the case inside a patient's body. The perfusionist will, as needed, administer blood and blood products. The surgeon is not continually monitoring blood pressure, blood flow, electrolytes, oxygen levels, etc. A surgeon is present, but does not directly supervise what the perfusionist is doing behind the heart-lung machine to maintain a person's physiology during a case. Surgeons rely on the perfusionist's independent medical judgments to maintain the well being of their patient and correct items that are out of normal limits. Perfusionists make corrections when something is wrong with the extracorporeal circuit maintaining a person's life. These decisions can include giving the patient more heparin, based on lab results, transfusing the patient due to a hematocrit that is dangerously low, adjusting the flow of oxygen to the patient, interpreting blood gases and making corrections as needed (i.e. giving sodium bicarb or calcium), and treating the patient with vasoactive medication, to manage the patient's blood pressure while on Cardiopulmonary Bypass (CPB).

At times a patient is unable to wean from bypass, for any number of reasons, and ancillary devices are placed to aid in the recovery process. These devices may include a Ventricular Assist Device (VAD) or Extracorporeal Membrane Oxygenation (ECMO) devices. When a VAD is placed, the perfusionist is the person who prepares the device for the surgical field. Post-operatively, they are the "point person" for this device. If the ICU nurses have questions or problems, the Perfusionist is called to field the questions or requested to go to the ICU to troubleshoot the device. When ECMO is used the patient either has a very sick heart or a pulmonary issue that requires long term support via a modified heart-lung machine. Once ECMO is placed, the patient is transferred to the ICU and a Perfusionist sits with the patient adjusting flows, giving medications and maintaining the integrity of the ECMO device.

At open-heart hospitals with ECMO programs, cases are staffed by perfusionists and licensed respiratory therapists. Cardiopulmonary Support (CPS) is another modified heart-lung machine that may be utilized in emergent situations. Often times it is reserved for the patients that arrive at the hospitals via the Emergency Department to go to the Cardiac Cath Lab in cardiogenic shock or full cardiac arrest. Here, the perfusionist primes the device and the cardiologist places cannulae in the femoral artery and vein. The Perfusionist manages the patient much like ECMO or CPB cases.

Licensure is becoming the standard for the profession. **Perfusionists are currently licensed in 18 states.** The primary reason is to ensure patient safety and hold those who practice within the profession accountable. Since 1981 the American Board of Cardiovascular Perfusion (ABCP) has provided a national certification process. It is important to note that this certification is voluntary to both obtain and maintain. There are no mandated state requirements for its retention in states without licensure. If a perfusionist in Virginia chose not to obtain or maintain certification there are no prohibitions, although some hospitals require continued certification as a condition of employment. Otherwise, a perfusionist can practice without any oversight as to competency or education. The ABCP does not have peer review or a disciplinary board within the organization. Therefore, there is no mechanism to remove a perfusionist's certification if they were to act improperly or to be negligent in providing patient care.

The federal Food and Drug Administration classify the medical devices used by perfusionists as having Levels 2 and 3 risks of harm to the public. These are the highest classifications for medical devices.

### Virginia Open Heart Hospitals

Sentara Norfolk General	Norfolk
CJW Medical Center	Richmond
Bon Secours Regional Center	Mechanicsville
VC University Health System	Richmond
Inova Alexandria Hospital	Alexandria
Bon Secours Saint Marys	Richmond
Riverside Regional	Newport News
Henrico Doctors'	Richmond
Sentara Virginia Beach	Virginia Beach
Virginia Hospital Center	Arlington
Lewis - Gale Medical Center	Salem
Lynchburg General Hospital	Lynchburg
Inova Fairfax Hospital	Falls Church
University of Virginia	Charlottesville
Bon Secours – Maryview	Portsmouth
Winchester Medical Center	Winchester
Mary Washington	Fredericksburg
Carilion Roanoke Memorial	Roanoke
Danville Regional Medical Center	Danville
Veterans Administration	Richmond

### Perfusionist Licensing in Virginia

Virginia perfusionists are seeking licensure to ensure public safety and not as a means to improve professional compensation. Perfusionists cannot refer patients. Perfusionists are employed by hospitals, contracted for services by hospitals, or employed by surgical group practices. Payment for service is an implicit agreement between the provider of perfusion services and the hospital. The patient often times has some type of insurance coverage either privately funded commercial insurance or publicly funded coverage by Medicare, Medicaid, or Worker's Compensation. Insurance payments are made to the hospital, or to a surgical group, and not directly to a perfusionist. Peer reviewed third party studies have shown that the future available supply of perfusionists in the currently licensed 18 states has not been materially impacted with licensing of the profession. Licensure would have no demonstrative impact on the salaries incomes levels of Virginia perfusionists. A 2011 University of South Carolina national perfusion salary survey (695 Responses) found an average salary of \$109,000 with 13 years of experience.

### Statistical Estimate of Perfusionist Related Surgical Case Injury or Deaths

2006 Cases	Perfusionist Caused # of Injuries/Death	2007 Cases	Perfusionist Caused # of Injuries/Death	2008 Cases	Perfusionist Caused # of Injuries/Death	2009 Cases	Perfusionist Caused # of Injuries/Death	2010 Cases	Perfusionist Caused # of Injuries/Death
6,025	6 Persons	5,940	6 Persons	5,436	5 Persons	5,435	5 Persons	5,227	5 Persons
Data Sources – VSCQI Virginia Cardiac Surgery Quality Initiative - Consortium of 16 hospitals and 10 cardiac surgical practices providing open-heart surgery in the Commonwealth of Virginia. Includes Coronary Artery Bypass Only, MV Replacement + CAB, AV Replacement + CAB, MV Replacement Only, MV Repair, AV Replacement, AV Replacement + MV Replacement, MV Repair + CAB). OPTN – Organ Procurement Transplant Network, US Department of Health and Human Services, Health Resources and Services Administration, heart, heart/lung transplants in Virginia. Reed and Stafford, in the book, Cardiopulmonary Bypass, second edition, have reported that the number of injuries or deaths from accidents of a perfusionist was/is 1 per 1,000 surgical cases.									

### Perfusion Education & Training

Currently there are 19 perfusion education programs in the United States accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP). None are located in Virginia. Upon completion of clinical and didactic course work the graduate will have a minimum of a certificate of completion or a baccalaureate degree. Several programs offer a masters degree. Formal training and successful completion of an accredited program is required for all persons wishing to sit for the certification examinations.

In general, the prerequisite science courses needed for entrance into an education program include, but are not limited to anatomy, physiology, math, statistics, chemistry, physics, and biology. The courses required for the completion of perfusion education include further study in the science courses with emphasis on their relationship to cardiovascular systems, perfusion techniques, devices, pharmacology, cardiac pathology, biostatistics, and a research project. The clinical practicum portion involves exposure to the various aspects of the scope of the practice including all age groups.

### Perfusionist Credentialing

The American Board of Cardiovascular Perfusion (ABCP) with successful passage of a two-part examination certifies perfusionists. Certification is voluntary to achieve and maintain. A few hospitals in Virginia have continued certification as a condition of continued employment. The lack of adequate hospital "credentialing" to assure continued professional competency does exist in the State. As an unregulated profession, the only institutional mechanism to protect the public from unqualified perfusionists is the Joint Commission on Accredited Health Organization (JCAHO) requirement that hospitals "credential" health care workers and physicians. Hospital credentialing is done through a random inspection process. The administration of a hospital has a profession, perfusionists, that comprise very few workers whose medical scope of practice is not legally defined. It is not known how actively Virginia hospitals enforce these professional qualifications as a component of their institutional standards of care.