post-anesthesia care unit, give a report to the nurse taking care of him, then go off to set up for and see his next patient. The day will fly by but before he can head home, he will need to check the schedule for the next day and prepare.

Meanwhile, Julie, who is a second-year anesthesiology resident, didn’t get out of bed until 5:30 a.m., because she lives in the neighborhood and walks to work. She’s rotating in the cardiothoracic ICU this month. She’s already had a rotation in the surgical-anesthesia ICU and one in the cardiothoracic rooms. She arrived in the unit at 6:30 a.m., completed her sign-out rounds, looked up lab values, had a chance to go to conference and even had a cup of coffee before rounds with the ICU anesthesiology attending at 8:30 a.m. Our units are “closed,” so that the ICU attending has the final word on all decisions. There is a lot of teaching during rounds. As each patient is discussed, the residents try to work as a team: while someone writes the orders, someone else is making phone calls for tests while the resident taking primary care of the patient is making sure that the treatment plan is understood. After rounds, there will still be some time to complete tasks not completed during rounds before the first wave of patients are admitted. There also will be time between patients to grab a bite to eat because they work until 6:30 or 7 p.m. Being in the CTICU is a 12-hour workday with call being about every five days. It’s hard work, but residents will learn a lot from their very ill patients and great attendings!

Bill is a CA-3 resident rotating through pediatric anesthesia. By 6:45 a.m., he’s changed into his scrubs and is already setting up his room. Today is Thursday, so there is a departmental Grand Rounds/QA Morbidity and Mortality conference. All of the O.R.s start one hour later today. After conference, Bill will go see his first patient. His challenge is to handle a newborn for one case and a 19-year-old for another case, not to mention their parents, all in one day. Many of the cases are very complex and challenging, but he also gets to provide anesthesia for the bread-and-butter cases as well. The surgeons, nurses and anesthesia staff have a great working relationship so that there’s a sense of cooperation and teamwork. Bill will be relieved at 3:45 p.m. by either another resident or his attending so he can get to his curriculum lecture session on time. He’ll return to his case when the session is over. There is a separate call team for pediatrics, but there are more anesthetizing locations than there are call residents. Bill eventually gets out but he doesn’t mind working late because there are excellent teaching opportunities both in and out of the O.R., and there are useful handouts and articles for his and his cohorts’ education.

Regardless of where you do your residency, you will see a lot of cases and become skilled at taking care of patients with coexisting medical problems when you work hard. It is important to remain vigilant, be adaptable, anticipate problems, study and ask questions. At the end of your three years of residency, you will be trained to practice competently and independently.

CHAPTER 15
Research Careers in Anesthesiology

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The term anesthesia comes from the Greek αναισθησία meaning “insensible” and is defined in the 1771 copy of the Encyclopedia Britannica as “a privation of the senses.” For the modern use of the words anesthesia and anesthetics, we are indebted to Oliver Wendell Holmes. Surgical anesthesia is the United States’ unique gift to medicine and is primarily responsible for the development of the surgical specialties. At a demonstration of diethyl ether in London for an amputation, the renowned British surgeon, Robert Liston, remarked in December 1846, “This Yankee dodge, gentlemen, beats mesmerism hollow!”

Academic activities performed by anesthesiologists are primarily based within university departments. The scope is quite broad and residents and medical students have always been encouraged to participate. These investigative endeavors range from molecular biology to observational patient studies and clinical trials. Traditionally, physician scientists in our specialty have focused on the pharmacology of drugs used in the perioperative period, as well as management and assessment of pathogenic mechanisms involved in acute pulmonary pathophysiology. For example, a number of anesthesiologists have been the driving force
behind the development of cardiopulmonary resuscitation (CPR) paradigms, as our specialty has always been the “gold standard” for airway management and judging the adequacy of ventilation, the “A” and the “B” of basic CPR. There is also major translational research in a large number of areas including the pathogenesis of chronic pain syndromes, as well as brain and cardiac protection in the perioperative period and ICU, to name a few. Probably because of the key role of anesthesiology in the development of modern medicine, many academic departments have faculty interested in the history of medicine and there are many opportunities for students to participate in such studies.

As a practice of medicine, anesthesiology focuses primarily on two major areas. The first is the management and alleviation of pain states, be it surgically-induced trauma, or acute or chronic pain syndromes. The second emphasis is on the maintenance of physiologic homeostasis in the presence of severe pathophysiology. Therefore, not surprisingly besides providing perioperative care, the anesthesiologist may also subspecialize in pain medicine or critical care medicine. Anesthesiologists often function as the patient’s advocate during the perioperative period. They will see patients in preoperative clinics in order to ensure that they are optimally medically prepared prior to surgery. As a result of this focus, research opportunities in clinical outcome studies exist in many departments of anesthesiology.

Currently, there is a relative shortage of anesthesiologists in most places around the country. In the past, anesthesiologists have been almost exclusively hospital-based physicians; however, while this is primarily the case, the practice of pain management has allowed members of our specialty to expand outside the hospital as part of multidisciplinary practices. Additionally, anesthesiologists often manage freestanding ambulatory surgical centers and in some instances provide anesthesia for minor surgical procedures in an office setting. These practices have had the effect of broadening the traditional research endeavors of our specialty to encompass pharmacologic epidemiology as well as expand the scope of the previously more narrowly-focused neuroscience investigations.

In summary, anesthesiology is a diverse practice of acute care medicine that originally developed out of a need to alleviate patient suffering from the severe pain and to correct the perturbation of physiologic homeostasis that occurs secondary to the trauma of surgery. The research performed in most academic centers reflects these interests. Anesthesiology is particularly well suited for those who like some excitement in medical practice, and like to see the results of their interventions more rapidly than traditional medical practice allows. In many ways the O.R. is a “laboratory” that allows the anesthesiologist to study traumatic perturbations in human physiology and their pharmacologic remedy. In addition to pain medicine and critical care medicine, recognized perioperative subspecialties include pediatric, cardiac, regional, neurosurgical, ambulatory and obstetrical anesthesia. Both patient-oriented and translational bench-top research opportunities exist that are directly germane to these subspecialties. Opportunities to practice clinical anesthesiology in conjunction with research currently exist in many locations. Our specialty is ideally structured to allow the physician to practice a very high level of quality patient care while being able to adapt his/her schedule to a scenario that best suits his/her individual needs and objectives, which might include a career as a physician-scientist. For those who are interested in developing an academic career in which research is a major focus, the earlier you become involved in scientific investigations, the better.