

# Anesthesiology

Subjects: Anesthesiology

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Anesthesia literally means without sensation. There are a number of different types of anesthesia. They allow for safe and comfortable conscious or unconscious experiences during a surgical procedure.

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## 1. Introduction

There are four general types of anesthesia. They include:

**Local:** numbing with local anesthesia one small area of the body. A patient stays awake and alert in this setting.

**Conscious or intravenous (IV) sedation:** utilizes a mild sedative to relax you and pain medicine to relieve pain. You stay awake but may not remember the procedure afterwards.

**Regional anesthesia:** blocks pain in an area of the body with local anesthesia, such as an arm or leg. Epidural anesthesia, which is sometimes used during childbirth, is a type of regional anesthesia.

**General anesthesia:** affects your whole body. The patient goes to sleep, is unconscious and feels nothing. The patient has no memory of the procedure afterwards.

## 2. Role and application

There are many standards in the delivery of anesthesia. These include things like proper positioning, monitoring, and typically the standards are similar locally, regionally and nationally. There are many guidelines that have been formulated to ensure safety in anesthesia and these can be found through looking at the guidelines developed by the American Society of Anesthesiology.

In general, anesthesia providers include physicians who have completed a four year anesthesia residency known as anesthesiologists. Many anesthesiologists also complete fellowships. Some examples of 1 year training fellowships include Interventional Pain, Critical Care Medicine, Thoracic, Obstetrics, Pediatrics, Regional Anesthesia, Ambulatory, Neurosurgical, Transplantation, and Cardiac Anesthesia. Certified Nurse Anesthetists (CRNAs) are nurses who have completed typically approximately 30 months of additional training in anesthesia. There are different models throughout the US and world but typically anesthesiologists oversee CRNA's or practice by themselves. In certain circumstances, CRNA's practice by themselves, including in rural settings.

Anesthesia providers check vital signs, including oxygenation, ventilation, temperature, blood pressure, heart rate, and for longer cases, urine output and other physiological processes to ensure safety of the patient.

And important aspect of anesthesia is managing pain through the use of analgesics, ultrasound guided nerve blocks, and adjuvant medications. Newer technologies are being developed such as peripheral nerve stimulation to limit opioids in the postoperative setting. Treatment of patients who might be high risk for the development of nausea is another important consideration.

Evaluating a patient's past medical history, weight, height, allergy history, potential for airways difficulties are all standard to ensure safety. Informed consent is required for all patients to receive anesthesia unless the patient is unconscious in the setting of an emergency such as catastrophic trauma.

In rare cases, patients can develop malignant hyperthermia which involves release of large amounts of calcium from the sarcoplasmic reticulum and can result in acidosis, rises in temperature and death. Inhalational anesthetics and succinylcholine, a drug that provides skeletal muscle relaxation during surgery or mechanical ventilation, are examples of drugs that can induce malignant hyperthermia and the treatment is dantrolene.

Skills/Personality Traits to be successful in anesthesia include teamwork, reading comprehension, critical thinking, listening, monitoring operations, problem solving, technical hand-eye coordination, social skills, and communication skills. There are tremendous job opportunities, typically there are shortages of anesthesia personnel, and there is high job satisfaction keeping patients alive and free of pain during surgery.

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