Med League

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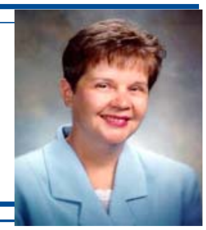
Medical Legal News

A free newsletter from Patricia Iyer, MSN RN LNCC, CLNI
Legal Nurse Consultant 908-788-8227



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Since 1989, Med League Support Services, Inc. has aided attorneys in 38 states. We perform these services:

- Analyze medical records
- Develop case chronologies
- Screen malpractice cases for merit
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- Prepare pain and suffering reports
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- Assist with demonstrative evidence
- Prepare medical illustrations
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Med League Support Services, Inc.

260 Route 202-31
Suite 200 Liberty Court
Flemington, NJ 08822
Phone: (908) 788-8227
Fax: (908) 806-4511
E-mail:
mail@medleague.com
Web site:
http://www.medleague.com

Patricia Iyer, MSN, RN, LNCC, CLNI

Past President of the American Association of Legal Nurse Consultants

Decoding Anesthesia Records

Anesthesia records are among the most complex forms found in medical records. The key to understanding them is to recognize that forms are generated at two phases of the surgical experience: preoperatively during the anesthesia evaluation and intraoperatively during the administration of anesthesia. The preanestheisa assessment collects data about the patient's medical and surgical history, anesthesia history, vital signs, height, weight, allergies, and details of any family member's reactions to anesthesia. The analysis of all of the data leads the anesthesiologist to assign a classification that defines the patient's medical condition and the urgency of surgery. Classifications range from 1-VI. The healthiest person is assigned a classification of I. A brain dead person waiting an organ procurement procedure receives a classification of VI. The addition of E to the classification indicates the surgery is being performed on an emergency basis.

It is of prime importance for the anesthesiologist to detect airway problems in advance of intubation. Difficult airways can occur because of facial deformities, a small mouth or thick neck, trauma to the face or teeth, airway tumors, cervical spine injuries, or burns or radiation to the head or neck. The anesthesiologist evaluates the airway opening by determining how much of the back of the throat is obscured by the tongue. The airway is graded on a I-IV scale. A grade I airway provides the best view of the back of the throat. A grade IV offers the least view and is the one most often associated with intubation challenges. [1] The anesthesiologist concludes the preoperative note by recording the type of anesthesia that will be provided: GA (general anesthesia), MAC (monitored anesthesia care), IV sedation, spinal, epidural, regional, IV bier, or others.

Intraoperative anesthesia records invariably consist of a grid with the time across the top in 5-minute increments, and a column down the left side to record information about medications or anesthetic gases and patient data. The grid starts with the time the anesthesia begins. A symbol is typically used to indicate when the incision was made. Doses of medication are recorded at the beginning of surgery, and as each subsequent dose is given. Vital signs are recorded using a series of Vs. The upper V is the systolic (top number in the blood pressure). The upside down V below it is the diastolic blood pressure value. It is common to record the pulse as a period. The trend in blood pressure is most important thing to review. Look for sudden dips or elevations in blood pressure. Such events will invariably be accompanied by notes of the anesthesiologist.

Various monitors used during anesthesia include cardiac, pulse oximetry (checks the oxygen level in the blood, and should be 95-100%), and end tidal carbon dioxide (ETCO2). This is the partial pressure or maximal concentration of carbon dioxide (CO_2) at the end of an exhaled breath, which is expressed as a percentage of CO_2 or mmHg (millimeters of mercury). The normal values are 5% to 6% CO_2, which is equivalent to 35-45 mmHg. Blood pressure and temperature monitors are also used.

The anesthesiologist records the amount of fluid given during surgery. This is sometimes documented as "crystalloids" and "colloids". Intravenous fluids are crystalloids. An easy way to remember this is to recall that crystals are often clear. Colloids consist of albumin (protein), blood, HES (hydroxyethyl starch), and dextran. Colloids are not clear. Blood and blood products are often abbreviated. Packed cells (PC) or fresh frozen plasma (FFP) may be given. Whole blood may be transfused if a patient is acutely bleeding and a volume needs to be replaced. Cell savers take blood out of the incision, filter it, and return it to the patient.

The estimated blood loss (EBL) is one of the most important pieces of information on the anesthesia record. Dry sponges are weighed prior to the beginning of surgery. The EBL is determined by emptying the suction canisters, recording amounts of irrigating fluid used, and weighing the blood soaked sponges. As a general rule, adults have 5000-6000 cc of circulating blood. A loss of 1000 cc or more during surgery without blood administration will be reflected in a drop in hemoglobin and hematocrit, and can be clinically significant.

Why is it so hard to read anesthesia records?

Anesthesia records contain large amounts of data recorded in a cramped space. The space for writing information is often smaller than is practical. There is usually insufficient room to record events when things go wrong. It is rare for a form to allow much space for additional notes. The anesthesia record is notable for using graphic recording techniques, abbreviations and symbols, some of which may not be standardized. Although the format of the anesthesia record page is designed to handle many parameters and pieces of information, it is impossible to record every single aspect of the anesthetic course. While vital signs are typically recorded every five minutes, they may be monitored more frequently. Blood pressure determinations recorded every five minutes may reflect an "average pressure" from measures obtained at two or three minute intervals, or even more frequently when a patient is unstable. The chart reflects the trend. [2] Sudden changes in the patient's condition direct attention away from recording data and toward administration of medications or fluids; the completeness of the anesthesia record is affected.

Automated anesthesia records (AAR) are available in some settings, but are not widely used. Information from electronic monitors is automatically transmitted to a computer. A keyboard is used to input additional information. The AAR has some drawbacks. Interference with electronic signals (artifacts) may require editing by the anesthesiologist. The most striking example of this problem occurs during the surgeon's use of electrocautery to cut tissues and stop bleeding. The EKG signal is lost during this time, resulting in erroneous heart rate recording, possible erroneous recording of heart arrhythmia, and triggering of alarms. The provider must then manually indicate the presence of electronically generated artifacts. Other artifacts may be present on the record without being recognized and identified by the anesthesiologist. These drawbacks may be outweighed by the advantages of more accurate recording and significant time savings. It has been estimated that between 15 and 20 percent of a provider's time is spent documenting and recording events and data, and it has been argued that relieving the provider of a task will allow for more supervisory and cognitive activity, thus preventing a crisis situation. [3] The move towards computerizing medical records may result in a more widespread use of AAR. However, whether handwritten or computer generated, it is likely that anesthesia records will remain challenging to interpret.

[1] Kuc, J. "Perioperative Records", in Iyer, P., Levin, B., and Shea, M.A., *Medical Legal Aspects of Medical Record*s, Lawyers and Judge Publishing Company, 2006
[2] Rodden, D. and Dlugose, D. "Nurse Anesthesia Malpractice Issues", in Iyer, P. and Levin, B. *Nursing Malpractice*, Third Edition, Lawyers and Judges Publishing Company, 2007
[3] Id