Chapter 10
Intraoperative Charting Requirements

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The first description of an automated intraoperative anesthesia recording machine was noted as early as 1934.¹ The device recorded tidal volume, FiO₂, and blood pressure. Since then, many attempts have been made to replace the paper record. One group even used video recording machines to record all of the information presented visually to an anesthesiologist from the monitor screens.² Despite the advances in computer and information technology, the paper record has endured as the medium of choice to document the intraoperative experience. The first modern anesthesia information systems were essentially intraoperative record keepers—with the ability to automatically capture physiologic data from monitors and other devices such as ventilators. From those humble beginnings, intraoperative record keepers have evolved into perioperative information systems that allow clinicians to manage the patient throughout the entire surgical experience.

Several drivers have contributed to this evolution in function. First, as data interfacing has become increasingly secure and prevalent, more physiologic monitoring is being automatically captured into the anesthesia record instead of being transcribed. Second, an enhanced understanding of anesthesia workflow by the AIMS vendors, in partnership with anesthesiology departments, has prompted these systems to become comprehensive anesthesia workflow tools rather than merely intraoperative record keepers. Finally, hospital leadership is looking to the ORs for revenue generation. The OR is well recognized as a financial engine that helps to drive the healthcare enterprise, and anesthesia is a key lubricant of this engine. As such, anesthesia information systems are incorporating more financially savvy functionality, and AIMS content is becoming more billing friendly.

Intraoperative charting represents an important piece of anesthesia workflow. However, without working in harmony with other pieces such as preoperative and postoperative charting, nursing documentation, billing, quality assurance, and patient tracking, AIMS do not provide a significant functional advance from their earliest systems. Fortunately, these workflow pieces are becoming increasingly integrated. The following will be discussed in this chapter: the information systems necessary to manage anesthesia workflow in the intraoperative space; the requirements for intraoperative charting to construct a comprehensive anesthesia workflow; and the integration of patient tracking and workflow systems.
record; modules that go beyond the charting requirements for the intraoperative record, as they are critical for intraoperative workflow; and the utility of these modules in creating an intraoperative record in a clinical scenario. Other chapters of this book will discuss charge capture, medication management, legal concerns, and decision support in more detail.

Information Systems and Anesthesia Workflow

Anesthesia workflow is designed to meet two parallel end points. Operationally, patients need to be moved efficiently throughout the perioperative system, beginning with the preoperative anesthesia consultation and continuing through the preoperative holding area, ORs, and postoperative care areas. Clinically, patients need to be adequately evaluated and managed throughout their experience. To do this, the right information must be available to the right person at the right time. Furthermore, the behaviors to meet these end points are now being reinforced at the federal level, with the inauguration of pay-for-performance metrics. Liability concerns are forcing healthcare providers to rethink how they document what they have done to protect themselves from malpractice claims. Information systems are considered valuable as risk-management tools. 3 As a result, AIMS implementations are being used to spur workflow re-engineering processes.

Several tools must work together for the re-engineering process to be successful. OR scheduling and resource utilization systems must interface or be integrated with intraoperative anesthesia systems to allow users to know when and where cases are scheduled and who is assigned to each case. Anesthesia H&P evaluations should be fully integrated with intraoperative record keepers. Ideally, surgical H&P evaluations should also be part of an integrated perioperative information system that includes anesthesia and surgical modules, as well as nursing assessments. As these evaluations contain significant overlap, common information should be shared across all of them. To optimize patient throughput and decentralize the availability of information, patient-tracking systems that display a patient’s location and status are important tools that should be part of an AIMS. Interfacing with financial systems to easily generate a bill is important to make billing efficient. A reduction in charge lag and days in accounts receivable was demonstrated by the use of a system that automatically extracted billing elements from the EMR. 4 Finally, integrated quality assurance modules are necessary for quality improvement efforts. Only then will the completeness of quality assurance documentation increase. All of these systems must be integrated with the intraoperative record keeper, and they must work together to provide a common user experience. Because hospitals and other healthcare institutions will have existing systems and relationships with multiple vendors, the exact mechanisms by which these systems come together will vary, but a seamless user experience must be a common goal for all institutions that implement a system.