Not surprisingly, there is more than one way to set up the operating room and to position a patient for a given operation. It was the editor’s intention to be inclusive and to present alternatives where such variety was found. It is important to realize that, in regard to operating room equipment, the available tools and resources in each hospital and, indeed, in each operating room vary. Operating rooms that are fully dedicated to minimally invasive surgery have four or five monitors that allow the surgeons to work in all four quadrants without having to move any of the monitors, booms, or towers. Furthermore, “flat screen” monitors can be easily moved without disrupting the overall operating room setup. Unfortunately, most laparoscopic surgery is not carried out in such rooms.

The majority of operating rooms have two laparoscopic monitors that are mounted on towers (on wheels) or booms. The insufflator, image processor, light source, and video recorder are usually located on one of the towers. Given these resources, when performing procedures that require working in two or more quadrants of the abdomen, it is usually necessary to move one or both towers at some point during the case. More planning is required when working under these circumstances than for a case in a room with four or more monitors. The surgeon needs to determine the order of the operation when performing a multi-quadrant procedure and position the towers accordingly at the start of the case. The tower and monitor position will vary from one type of procedure to another. The operative plan should be shared with the scrub nurse, circulating nurse, and the anesthesiologist so that all can position their equipment so as to facilitate the surgery.

The purpose of the chapters that follow is to provide one or several ways to arrange the equipment and table for each specific case. The assumption has been made that each operating room has a total of two monitors. The major pieces of equipment are included in the diagrams; however, some items (suction, cautery, calf compression stocking machine) have been left out to make the drawings less cluttered and easier to understand. Although it was our goal to present several room setup alternatives, it was not possible, in some cases, to include all the possible options.

In regard to patient positioning, for a fair number of advanced procedures, the operation can be carried out with the patient in one of several positions. As
examples, in the case of colectomy or antireflux surgery some surgeons place the patient in the supine position while others prefer the modified lithotomy position. The latter position allows the surgeon or assistant to stand between the legs, thereby providing an alternative vantage point from which they can dissect or retract. This decision, for colectomy or antireflux procedures, usually does not influence port positioning. There are other advanced procedures, however, such as nephrectomy or adrenalectomy, where significantly different port positioning schemes accompany each body position option. The different body positions in these instances are usually quite dissimilar, for example, supine versus lateral decubitus. Similar to operating room setup, an attempt has been made to be as inclusive as possible in regard to patient positioning.

B. Port Placement Schemes

It is important to realize that there are numerous reasonable port placement schemes for each different laparoscopic procedure. The number of ports utilized for each operation also varies from surgeon to surgeon. The factors that influence the number of ports that are required for a given advanced procedure include the patient’s body habitus, the condition of the intraabdominal operative field (i.e., presence of adhesions, inflammation, atypical anatomy, etc.), the pathology, the specific operative technique utilized, and the experience of the surgeon and the assistants. Whether an assistant is to be taught how to perform the case in question is yet another important variable that influences the number of ports used in a given case; this issue is further discussed below. As a general rule most surgeons try to keep ports at least four fingerbreadths apart to prevent “sword fighting.”

1. Body Habitus Considerations: The distance from the xiphoid process to the pubic symphysis varies widely, as does the width of the anterior abdominal wall, from patient to patient. In patients with a small overall abdominal wall surface area it is usually possible via a single port location to reach and work in all four quadrants. However, in a patient with a lengthy and wide abdomen, a port placed in the inferior aspect of a lower quadrant will not provide access to the more cephalad reaches of the upper quadrants. Therefore, in cases that require dissection in two or three quadrants, the port placement scheme needs to be adjusted, and/or extra ports may be needed to complete the procedure. (This occasionally is the case when taking down the splenic flexure during a sphincter-saving rectal resection.)

In depicting port placement schemes, a generic abdominal wall drawing is invariably used. Although this drawing will apply to most patients, if it is followed in patients with significantly greater abdominal wall surface area the ports will not be ideally situated. In patients with a lengthier and wider abdominal wall, the entire port placement arrangement will need to be shifted either cephalad or caudad toward the principal target quadrants. In contrast, in patients with a small abdominal wall surface area the short distance between the costal margin and the anterior superior iliac spine will leave the surgeon few choices as to where the lateral ports can go if they are to be positioned lateral to the rectus muscle and kept a reasonable distance apart. In these latter patients, regardless