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patient who does not respond to nonpharmacologic methods of relaxation (such as slow abdominal breathing). These medications have been shown to decrease patient anxiety when undergoing dermatologic inpatient and outpatient procedures including Mohs micrographic surgery and hair transplantation.^{33–35} If these medications are administered sublingually, the onset of action can be quicker than when they are administered orally. These medications should not be given to a patient who will be driving home. All patients given intraoperative or preoperative sedatives must be accompanied by an adult, must be counseled not to drive on the day of the surgery, must be observed postoperatively until the sedative effect has sufficiently diminished, and must be counseled that their mental capacities may be diminished for a prolonged period after surgery.

Standby Medications and Equipment

It is helpful to have injectable diphenhydramine and epinephrine available for subcutaneous injection in case of an anaphylactic reaction to anesthesia, latex, or other medication. It may also be helpful to have an Ambu-bag, an insertable airway, oxygen, a cardiac monitor, and a defibrillator in your office, but these items are not absolutely necessary.

Preoperative Patient Preparation

PREPARATION OF THE SKIN

The most common preoperative preparations to be used on the skin include alcohol, Betadine (povidone-iodine), and Hibiclens (chlorhexidine). The main advantages of using chlorhexidine are that it has a longer-lasting antibacterial effect than povidone-iodine and the risk of contact sensitivity may be less. One disadvantage of using chlorhexidine, however, is that it is more toxic to the eye if it accidentally drops into it. However, if the eye is flushed immediately, no damage may be done. Caution must be taken when using alcohol to be sure that all of the alcohol has evaporated before any electrosurgery is performed in the area.

The most important part of the preoperative preparation of the skin is the mechanical rubbing of the antiseptic onto the skin with the gauze. Although the gauze may not need to be sterile for the first prep, it might help to use sterile gauze in the last prep. It is actually impossible to sterilize the skin because bacteria can extend into hair follicles. The goal of the preoperative preparation of the skin is to reduce the bacteria on the skin surface by scrubbing the skin with a good antiseptic such as povidone-iodine or chlorhexidine. Povidone-iodine must be allowed to dry on the skin for its effect to be optimal. Chlorhexidine has the advantage of not staining the skin and being easy to wash off. Povidone-iodine has the advantage of being easy to see where it was applied but should be avoided in persons with iodine allergies. However, Darouiche et al. found a greater than 40% reduction in total surgical site infections among patients undergoing clean-contaminated surgery who had received a single chlorhexidine-alcohol scrub as compared with a povidone-iodine scrub.³⁶

An 8-oz pump bottle of chlorhexidine can be kept in each examination/procedure room and can be used repeatedly by pumping the solution onto clean or sterile gauze. Povidone-iodine swab sticks are convenient but a bit more expensive than povidone-iodine in a bottle applied with gauze.

One extensive evidence review for the effectiveness of skin antiseptics in the prevention of surgical site infection concluded that chlorhexidine is a dominant strategy over povidone-iodine for preoperative skin antisepsis to prevent surgical site infection.³⁷

A survey of MMS surgeons found that CHG is their most commonly used skin antiseptic except during periocular procedures, during which povidone-iodine is more often used.³⁸

PREPARATION OF HAIR

The best method of hair removal over a surgical site is to use scissors to cut the hair. Using scissors to clip hair is now the preferred method for preoperative hair removal because a close shave with a razor causes minute abrasions of the skin that can increase the chance of infection.³⁹ A depilatory cream may also be used but this is messy and more time consuming. A chemical depilatory could be used by the patient the day before surgery if desired. The scalp is the area of the body in which the hairs can most interfere with surgery. Plastering down the hair with petrolatum or other ointment can decrease the number of hairs that interfere with surgery without causing a noticeable loss of hair during the postoperative period. Hair ties and bobby pins are invaluable items to have in the office (Figure 1.2).

Drapes

The use of sterile fenestrated aperture drapes (drapes with a hole) is recommended when suturing is performed so that the sutures do not drag over nonsterile skin (Figure 1.3). Sterile drapes are not necessary for small procedures, such as a shave biopsy, where suturing is not performed. Disposable or linen-quality sterile drapes are adequate for the procedures described in this book. You can create your own

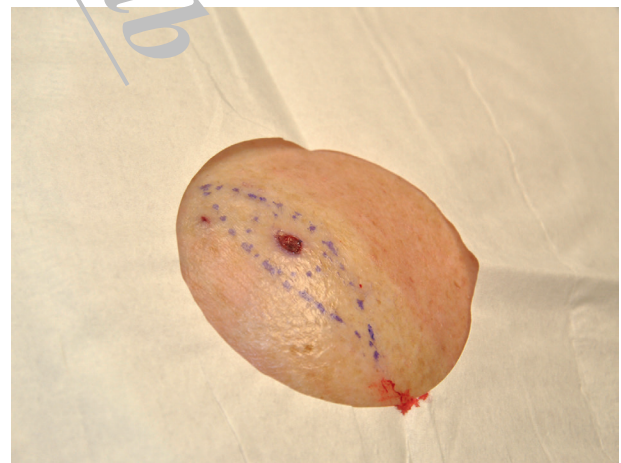


Figure 1.2 A fenestrated drape is used to produce a sterile field for the surgical removal of a basal cell carcinoma. (Copyright Richard P. Usatine, MD.)

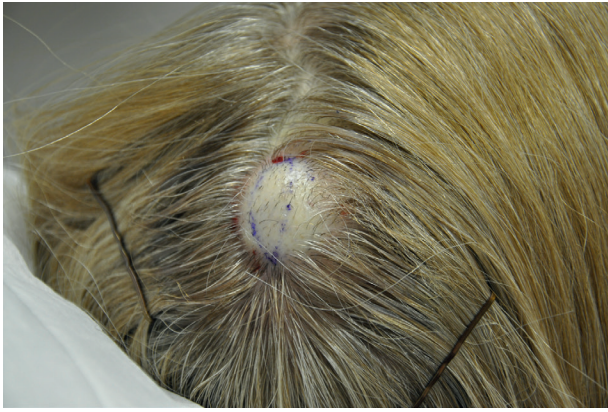


Figure 1.3 Hair on the scalp was cut short with clean scissors to make it easier to excise this ellipse over a pilar cyst. Note how the hairs surrounding the surgical site are held down with bobby pins. Petrolatum ointment can also be used to keep the surrounding hair out of the surgical field. (Copyright Richard P. Usatine, MD.)

aperture drapes by cutting a hole in a sterile disposable drape. This allows you to customize the size of the hole you need. This should be done with sterile suture scissors and not tissue scissors to avoid dulling your more expensive instruments. You can also use the paper that is used to wrap surgical trays before sterilization for this purpose to save money. Drapes can be cut in a variety of sizes with a variety of holes and then sterilized alone or as part of a packet. Some prepackaged disposable sterile drapes come with adhesive around the aperture to stabilize the drape and isolate the field.

Sterile Technique

Absolute sterile technique is not necessary for most minor skin surgical procedures. This is true not only for cryosurgery and electrosurgery but also for shave biopsies of the skin, curettage, incision and drainage, and other small surgical procedures in which the wounds are left open to heal without suturing. We no longer use sterile gloves for punch biopsies including those that are closed with sutures. Although all instruments must be sterile before use for these procedures, the clinician may use nonsterile gloves. Sterile drapes are not needed for these procedures. Of course, it is standard policy to use razor blades, scalpel blades, and needles that are disposed of at the end of the procedure.

Sterile technique is commonly used when performing surgery in which the wound will be closed, such as with suturing or staples. However, several studies have shown no difference in infection rates between the use of clean, nonsterile and sterile gloves in outpatient skin surgeries and Mohs surgery.^{40–44} One study reported no difference in the prevalence of infection in cases with sterile gloves and nonsterile gloves but also reported that the use of sterile gloves was 3.5 times more expensive than nonsterile gloves.⁴²

Physicians typically wear masks during procedures in the operating room. There have been some studies that masks and head coverings have not been shown to reduce the surgical site infection.⁴⁵ This includes a prospective

study of 508 laceration repairs in the emergency department where they found no difference in infection rate between cases where the physicians were wearing surgical caps and masks compared to the unmasked and uncapped group.⁴⁶ However, after the onset of the COVID-19 pandemic the use of face masks may remain a standard practice while seeing patients, regardless of whether surgery is being performed.

STERILIZATION OF INSTRUMENTS

Before sterilization, instruments must be cleaned of blood and debris. This can be done manually with a soft toothbrush, an ultrasonic cleaner, or a combination of these procedures.

A steam sterilizer (autoclave) is necessary to sterilize instruments and ensure that diseases such as viral hepatitis or HIV are not transmitted from patient to patient. Holding solutions should not be used to sterilize instruments. They are inadequate for proper sterilization and can only be used to temporarily hold or clean instruments. The instruments should be placed in sterilization bags with indicator strips to ensure the sterilization process is effective. These bags come in a variety of sizes to accommodate different instrument sets. Self-sealing bags cost a bit more than those that must be taped, but the convenience outweighs the cost.

Instruments can be packaged in sets for specific procedures such as punch biopsies, elliptical excisions, or nail surgery. Instruments can also be sterilized separately, but they need to be moved in a sterile manner onto the sterile surgical stand. It can be helpful to create surgical packs that contain a number of cotton-tipped applicators and gauze or just include these in the sets of instruments. This can save one the time of opening individually sterilized packets and can save money by allowing one to buy applicators and gauze in bulk.

Time-Out

With the encouragement of The Joint Commission (previously JCAHO, The Joint Commission on Accreditation of Healthcare Organizations), most hospitals are now mandating surgical time-outs prior to all surgery to reduce errors. This consists of identifying the patient by two forms of identification and confirming that the consent has been obtained, any required studies have been done, required equipment and required staff are present, and the surgical site has been identified prior to proceeding with the surgery. This is typically documented in writing or the electronic medical record (EMR) by the clinician or another member of the team present and prior to the start of the procedure. At any time or with any concern, any member of the team or staff may request a time-out to confirm that all is in order.

POSTOPERATIVE MANAGEMENT

Clinicians should provide patients with expectations during the immediate postoperative period including wound care and potential issues including swelling, bleeding, and pain. Postoperative pain after a dermatologic procedure is typically

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2

Setting Up Your Office

RICHARD P. USATINE, MD, and MARION BELK, MD

FACILITIES, INSTRUMENTS, AND EQUIPMENT

SUMMARY

- The goal of this chapter is to help you set up your office for doing dermatologic procedures.
- Tips for adequate lighting and procedure chairs are provided.
- Other equipment reviewed includes floor lamps, stools, and Mayo stands.
- Hand instruments are reviewed in detail.
- Pointers are provided on injectable medications and chemicals that are most useful for dermatologic procedures.
- Cryosurgical and electrosurgical equipment are discussed.

When planning your office environment keep in mind the principle of setting yourself up for success. This means that you must stock your office with the equipment you will need to perform your procedures in a timely fashion with expertise and minimal complications. After receiving the proper training this will require researching the needed equipment as well as thoughtful placement of such in your office. It is advisable to purchase the best equipment you can afford in the beginning; equipment made in Germany, the United Kingdom, or the United States can be expected to function properly and remain sharp for the life of the instrument. An old saying is, “buy once, cry once.”

It isn't necessary to purchase new equipment, however, as used medical supply stores abound in larger cities. An excellent way to find a reliable used medical equipment store is by simply asking other physicians in the area. Chances are they will be able to direct you to such a business. Another outstanding way to stock your office is to locate a physician who is retiring who will be happy to help you get started and will sell you his or her equipment for literally pennies on the dollar. A plethora of used medical equipment can be found by a simple Google search, and of course eBay will have everything you could wish for, but the reliability of such vendors could be questionable. The retiring physician option and the used equipment store carry the advantage of your being able to see and test the equipment prior to purchase, which justifies a slightly higher price. Remember also that starting out you do not want to over-purchase. It is fine to start small and grow your instrumentation as your practice grows.

A successful operating suite will have adequate lighting, a procedure chair that is adjustable in height and position, and high-quality surgical equipment. In this chapter, we will share what equipment we have found useful for success and how to save time and money while setting up your office.

Lighting

Simple surgical procedures can be performed in almost any office if the lighting is adequate. Standard office lighting is often too dim to allow proper visualization of the operative field. When setting up a new facility, consider doubling the number of light fixtures to improve illumination. For many clinicians, this will provide adequate lighting for performing simple surgical procedures.

Headlamps can also be used as an adjunct in the operative area. When used in conjunction with loupes, headlamps are valuable when performing finely detailed procedures. Often a good headlamp with magnification can be obtained at a hobby/crafts store for significantly less money than a medical supply company, and the quality is comparable. A phone light, otoscope, or dermatoscope can be helpful to illuminate a specific area during an exam.

SURGICAL LAMPS

Adequate lighting is paramount and is best achieved by using surgical lamps that are either ceiling mounted or on a rolling base. Great surgical lights can be purchased with LED bulbs for better energy efficiency and bright light with little heat. If you have a main procedure room, look into installing a ceiling-mounted lamp. A tall maneuverable floor lamp may be adequate and work well in your other exam rooms.

FLOOR LAMPS

You should have at least one good-quality movable floor lamp for your exam rooms. One per room is optimal but one good movable lamp is a good start. Look for a lamp that provides excellent illumination, ease of movement, and stability. The Burton Nova Exam® LED exam light (Figure 2.1) is one floor lamp that works well for us, but other floor lamps are available that provide similar features. The LED light



Figure 2.1 Nova LED lamp. Great lamp with two settings for procedures. (Copyright Richard P. Usatine, MD.)

source produces a cool light that enhances physician and patient comfort while delivering a uniform beam pattern and two possible illumination levels. The K-arm moves smoothly with no drifting for easy and reliable positioning.

WOOD'S LAMP

The Wood's lamp is an ultraviolet light that is useful for diagnosing or evaluating:

- Fungal infections including *Microsporum canis* and *Malassezia furfur*
- Vitiligo
- Erythrasma
- Melasma
- Lentigo maligna melanoma

There are many types, from those that are built in a unit with an accompanying magnifying lens to simpler, less expensive options. It is also helpful for identifying the coral red fluorescence of erythrasma. It can be used for accentuating the hypopigmentation of vitiligo. In melasma, it is used to see if the hyperpigmentation is within the epidermal or dermal layer. Melanin appears dark when in the epidermal layer but not in the dermal layer.¹ The Wood's lamp can be used to see the full extent of a lentigo maligna melanoma before biopsy or treatment.^{1,2}

Surgical Table, Stools, and Mayo Stands

It is essential to have at least one good surgical table with a height adjustment. The best tables have preset positions that move the table to the optimal height for your work. Also, make sure that you find a table that allows the back

and foot adjustments to move simultaneously as well as independently. If not, it can take a long time to get the patient in the proper position for procedures. It may also help to have a table that spins on a center axis for positioning the patient at the best angle in the room. Make sure that the table has stirrups. Even if you do not do gynecologic exams, stirrups can be helpful for skin procedures performed in the inguinal or genital area.

Individual preferences will determine if a clinician performs most procedures while sitting or standing. It is best to avoid bending over the surgical table for the health of your back and neck. It helps to adjust your table and stool for good body ergonomics. An easily adjustable pneumatic stool is advantageous. Ideally, the stool has foot-actuated controls that allow you to change the height while you are scrubbed in. Otherwise, a large hand control for the height adjustment is better than a small one.

Each room should have a Mayo stand to hold surgical instruments during surgery. Make sure these stands are stable and that the height can be adjusted.

Hand Instruments

Small surgical instruments can be categorized by their purpose in surgery, such as the following.

- *Cutting:* scalpels, razor blades, scissors, punches, curettes
- *Tissue holding:* forceps, skin hooks
- *Undermining:* scissors
- *Hemostasis:* hemostats or mosquitoes
- *Suturing and wound closure:* needle holders, scissors, staplers

Instruments used to perform excisions include scalpel handles with blades, forceps, skin hooks, hemostats, scissors, and a needle holder. High-quality instruments that will last and perform well during surgical procedures should be purchased. A high-quality needle holder is important because a poorly manufactured one will not hold needles properly. The best surgical instruments are often made in Germany, England, and the United States. Some of the less expensive surgical instruments are manufactured in Pakistan, and the quality is comparable to the cost. Poorly made disposable hand instruments should be avoided.

CUTTING

Scalpels

A scalpel has two parts, the handle and blade. The four most useful blades (Figure 2.2) for skin surgery are given as follows.

- *No. 15 blade:* most commonly used blade for skin surgery
- *No. 15C blade:* shorter and thinner blade with a finer point than the traditional No. 15 blade. It is useful for fine plastics work on the face but is not needed in most offices
- *No. 11 blade:* sharply pointed with a cutting blade on both sides, making it useful for incision and drainage of an abscess or cyst
- *No. 10 blade:* larger than a No. 15 blade with the same shape. It is useful for doing a shave biopsy of a large lesion or for cutting a thick callus on the foot. Some surgeons prefer it for large skin excisions on the back because the skin is so thick in this location.