Surgical Instruments: The Introductory Guide/Basic Course #1

Chapter I

About Sklar

For 123 years, Sklar has set the standard for surgical instrumentation. In 1892, German born instrument maker John Sklar, founded the company to fill a need for American made surgical instruments and the rest is history. Sklar rose to prominence during World Wars I and II and was awarded the principal contract as the surgical instrument provider for the United States military. This contract established Sklar as the industry leader and placed it on the forefront of the surgical marketplace, where it went on to receive Certificates of Merit and Achievement from the U.S. Navy and six Army Navy “E” Production Awards.

During the 1930s, Sklar’s research department helped to develop a stainless steel alloy especially suited to the manufacture of surgical instruments. The company’s investment in research was justified long-term; most surgical instruments are still made of long-lasting, rust resistant, stainless steel.

Today, Sklar is headquartered in West Chester, Pennsylvania where it remains the authority on the manufacture of high quality surgical instruments to medical professionals in 75 countries worldwide. Throughout its history, Sklar has collaborated with leading surgeons and medical facilities to develop thousands of unique surgical instrument patterns. In recent years, Sklar has expanded its product line to include more than 19,000 precision crafted, stainless steel instruments: the largest offering of surgical instruments in the world. Specialty practices include: OB/GYN, Orthopedic, ENT, Cardiovascular, Endoscopic, Dermatology, Podiatry, Veterinary, Dental, etc.

The prevention and reduction of healthcare associated infection (HAI) is a top priority in medical facilities today. The Centers for Disease Control Prevention (CDC) has cited “a critical gap in patient safety,” calling for increased vigilance toward recommended instrument reprocessing procedures. Many medical practices are converting from reusable to disposable instruments, and Sklar is leading the trend with a full line of high quality, sterile and non-sterile, single-use instruments to complement its trusted and longstanding stainless steel patterns.
All Sklar’s products are offered exclusively through a global network of distributors, providing an additional layer of expertise to its clients worldwide.

**Products**

The CDC mandates that instrument end-users “comply with all steps as directed by the device manufacturer”. The International Association of Healthcare Central Service Materiel Management (IAHCSMM) recommends that processes such as care and cleaning; and the management of instrument assets; involve the “original equipment manufacturer”. The U.S. Food and Drug Administration (FDA) points to “a need for manufacturers of reusable medical devices to validate instructions for usage, labeling and reprocessing for the device user community, in the name of patient safety.”

As an instrument manufacturer with a reputation for the highest degree of quality, consistency and staying power, Sklar is uniquely qualified to present *Surgical Instruments: An Introductory Guide*. The education of healthcare professionals is one of Sklar’s primary goals. Education improves quality control, determines instrument care and usage, and ultimately impacts patient satisfaction.

With five different grades of instruments, a full line of disposables, convenience kits, stainless steel-ware, and care and cleaning solutions to support every stage of the healthcare process, Sklar defines proper usage, handling, safe practices and generally accepted requirements for members of the medical community who work with surgical instruments.

**The five major surgical instrument lines are:**

- **OR Grade** – The highest quality surgical instruments made from U.S and German grade stainless steel and designed to meet the exacting standards required in a surgical setting.
- **Mid-Grade** – High quality, Mid-Grade OR instruments made of Pakistani stainless steel, deliver significant value and performance in the clinics, physician’s offices and other surgical settings.
- **Physician’s Grade** – Forged from surgical grade Pakistani stainless steel and designed for routine surgical or diagnostic use in the office setting.
• **Sterile Disposable Floor Grade** – Ready to use, and suitable in a number of surgical settings, sterile disposables, made of Pakistani steel, combine low cost with reliable performance.

• **Floor Grade** – Made of Pakistani steel and combining convenience with reliable function at an affordable cost; these disposable instruments are ideal for non-critical applications.

**Reusable vs. Disposable Instruments**

For anyone who works in the surgical arena, central service supply, instrument manufacturing or the healthcare field in general, improved patient outcome is the ultimate goal. It is the responsibility of the instrument manufacturer to stay abreast of current trends, innovations and regulations in healthcare, and to develop instrumentation that responds to the real-time needs and concerns of medical professionals.

The FDA recently issued its final guidance on reprocessing reusable medical devices (“Reprocessing Medical Devices in Health Care Settings: Validation Methods and Labeling Final Guidance – March 24, 2015”). The document emphasizes the importance of instrument design – calling on the instrument industry to create devices that are less challenging to reprocess than some of those on the market presently. It also singles out the “human factors” affecting instrument reprocessing, saying reprocessing instructions should be “technically feasible” in the intended, everyday work environment.

The movement toward the use of disposable instruments as a means of reducing the time cost and liability associated with the care and cleaning of reusable instruments has begun. Disposable instruments are often a viable alternative to their multi-use counterparts, and because of this you will see examples of them within this book.

**Single-use instruments:**

• Provide a solution to reprocessing instruments day to day;

• Reduce cross contamination;

• Eliminate the need for comprehensive reprocessing instructions and follow-through;

• Reduce human error in cleaning and sterilizing;

• Improve patient safety;
• Reduce tangible and intangible instrument reprocessing costs.
What to Expect From This Guide

Surgical Instruments: The Introductory Guide and Surgical Instruments Basic Course #1
for CE Credit, are designed to provide a basic overview of the most widely used surgical
instruments and a primer to the instrument industry. This guide gives up to date information
about:

- The history of surgical instruments
- The instrument manufacturing process and metallurgy
- The parts of a surgical instrument
- Instrument categorization by function
- Identification of the top 35 most commonly used instruments
- Instrument sets
- Photographs, illustrations and clear examples
- An added bonus – Surgical Instruments Basic Course #1 - CE Presentation and Lesson
  Plan
- For additional information about instruments and their use, please refer to the Sklar
  website at: www.sklarcorp.com
Chapter II

The History of Surgical Instruments

The history of surgical instruments follows the larger story of humanity’s continued technological advancement. From microscopic bacteria to massive blue whales, creatures great and small instinctively strive to preserve their lives. What sets humankind apart, is our endless capacity to innovate, and to apply those innovations to increase our health and wellbeing. The history of surgical instruments epitomizes this innovation.

Prehistory

Many uses of surgical instruments reflect basic, instinctual acts of self-preservation on which our earliest ancestors relied. The first surgical instruments were teeth and hands, used in conjunction with available natural materials like twigs and thorns.

Paleolithic humans are thought to have first developed stone tools 2.5 million years ago, forever wedding human history and health to the implements we invent. It is likely that people in the Old Stone Age used the sharp edges of early tools for rudimentary medical applications.

Archaeologists have found clear evidence that stone tools were used for surgery during the Neolithic period (10,000 – 2,000 BC). Skulls found show the unmistakable signs of Trepanning (the practice of drilling a hole into the skull to treat neurological problems like seizures). Flint blades, borers and scrapers were used to accomplish this earliest elective surgery.

Metallurgy, smelting of copper and the casting of bronze began in 5,000 – 4,000 BC. This revolution in human engineering did not immediately result in a wave of novel surgical instruments; however, it did bring new blacksmithing and crafting tools whose basic forms would become surgical staples through to the present day. These include metal tweezers, tubes, forceps and saws.

The advent of writing systems ushered in the historical period circa 3,500 BC. The discovery of iron and steel followed, moving surgical instruments into the forefront of modernity.
Antiquity

The Ancient Egyptian civilization had a robust medical system that included surgery. In 2011, archaeologists discovered early bronze surgical tools in the tomb of Qar, an Egyptian physician who lived over 4,000 years ago during Egypt’s Sixth Dynasty.

No figure in ancient medical history looms as large as Hippocrates, the famous physician of Classical Greece and the father of modern medicine. Hippocrates established medicine as a working discipline, distinct from philosophy and religion. He and his followers also produced a significant body of writings and instruction that included surgical directives, using instruments of bronze and iron.

The rise of Rome brought about a renewed emphasis on the importance of surgery. The Empire required competent surgeons to keep the conquering legions on their feet and in fighting condition. The Roman Empire’s greatest surgeon was Galen, whose writings would guide medical practice for centuries.

Surviving artifacts and period writings demonstrate the sophistication of Greco-Roman surgical instruments. Many of the fundamental instruments still used today, such as scalpels, forceps, scissors, specula, probes and catheters, were well known to the ancients. Roman surgeons worked with both steel and bronze instruments.

Arabic

During the Dark Ages, classical Western knowledge was maintained in the Islamic world. Much Greco-Roman philosophy and science survived in Arabic translations that eventually resurfaced in the West. Abu al-Qasim Al-Zahrawi, a surgeon in Islamic Spain, made the greatest advancements in surgical instruments during this period. Known as Albucasis in Europe, he produced a renowned 30-volume medical encyclopedia. The most famous volume contained illustrations of surgical instruments and his book was widely translated into European languages and disseminated among medieval surgeons.
The Middle Ages

After the Roman Empire fell, Islamic scholars preserved and propagated much of the wisdom of the classical world, including the teachings of Galen. Translations of Galen from Arabic works introduced Galen’s thought to Medieval Europe, where his ideas became the medical orthodoxy of the day.

Medieval artisans crafted surgical instruments from iron, steel and wood. Metal instruments, including scalpels and saws, often had wooden handles. Unlike the corrosion-resistant bronze favored in Antiquity, these materials easily succumbed to the passage of centuries, which helps explain why fewer medieval instruments have been found than their Greco-Roman counterparts.

The Renaissance

The Renaissance brought a resurgence of learning, creativity and innovation to Europe. The invention of the printing press allowed for faster and more widespread dissemination of ideas, old and new. This enabled a surge of scientific activity that advanced medicine and surgical instruments.

The Italian scientist Andreas Vesalius, celebrated as the father of anatomy, published the first accurate book about the human body. Others would build on his work, to the present, inviting new surgical techniques and instruments.

Even as knowledge flourished among intellectuals, barbers conducted most day to day civilian surgery, using the same tools for giving a close shave as for performing an operation. Most surgical innovation was born on the battlefield, where Vesalius’s findings were put to the test. The spread of firearms in warfare led to the production of specialized probes and forceps for extracting bullets. Emergency amputations from gun and cannon fire inspired surgeons to introduce ligature for binding hemorrhages.

The first book featuring surgical instruments drawn to scale, enabling skilled craftsmen to reproduce them, appeared in France in 1594.

Seventeenth and Eighteenth Centuries

Once the bailiwick of blacksmiths and armorers, the manufacture of surgical instruments passed to pewter workers, cutlers and silversmiths in Europe during the 17th century. Decorative
materials like tortoiseshell, ivory and ebony became popular, and surgical instruments were often stored in luxurious shagreen leather boxes like the finest fashions. It should come as no surprise that the age of Louis XIV, with his lavish Versailles palace, also produced especially opulent surgical instruments.

Surgery became a profession in the 17th and 18th centuries. In Sweden this occurred with the development of a professional, royally recognized Society of Surgeons that branched from the national guild of barbers. The training of surgeons also moved to the universities in the 1700s. The establishment of medical schools and clinical education in France following the French Revolution furthered the trend toward professionalization. Paris would remain a center for surgical innovation.

The first catalog by a professional, referring to himself as a “surgical instrument crafter” was produced in London in 1798 by J.H. Savigny. Sklar would perfect the surgical instrument catalog in 1892 and beyond.

**Nineteenth Century**

The mid-1800s brought radical changes to the surgical field, dramatically increasing the demand for a wide variety of instruments. With the advent of anesthesia, internal surgery became possible. The use of anesthetic gas – first ether and then chloroform – beginning in 1846, allowed for more invasive procedures and more time to perform delicate operations and as a result, the number and type of surgical instruments increased.

At this time, there was widespread acceptance in the U.S. and Europe of the germ theory of disease, as a result of the experiments by Louis Pasteur and Robert Koch. Knowledge of germs, now taken for granted by everyone who applies hand sanitizer, has saved countless lives. An early application of this theory was the antiseptic practice of spraying carbonic acid on a wound and wrapping it in carbonic bandages to kill germs.

Between 1885 and 1910, the grand scale awareness of the role germs play in disease, led to the thermal sterilization of surgical instruments. For the first time, surgical instruments could be used to help a patient heal without the risk of introducing bacteria and viruses that may cause the patient more harm than the condition being treated.
The Twentieth & Twenty-First Centuries

The 20th century of the Common Era saw more scientific and technological progress than any period of recorded history. In this climate of change, surgical instruments completed the millennia-long journey from stone to stainless steel.

The practice of sterilization created many new possibilities for internal surgical procedures, increasing demand. It also put an end to the crafting of surgical instruments out of wood or decorative materials, which did not hold up to the heat of steam sterilization. The corrosion of steel instruments was also a challenge. Chrome and nickel plating offered a partial solution to corrosion, at the end of the 1800s, but the advent of stainless steel finally provided an answer.

Several engineers on both sides of the Atlantic independently developed variations of stainless steel in the early 20th century. Mayer and Company created the first stainless steel surgical instruments in 1916 for a British otolaryngologist. Less than a decade later, Sklar catalogs offered stainless surgical instruments which steadily replaced their plated forebears. It remains the most common alloy in use today.

The era of stainless steel brought with it the mass production of surgical instruments. The ancient artisanal model of handcrafting every aspect of an instrument could no longer meet the demand for both quantity and consistency that the 20th century required. Plastics were created in the 1920s and created a “disposable revolution” during the decades to follow. Factories began turning out scores of familiar, single use surgical implements, including plastic catheters, dressing forceps, needles, suture material, tubing and more. Plastics proved indispensable in a host of other 20th century surgical innovations, from the pacemaker to advanced prosthetics.

In the early 21st century, new techniques like minimally invasive procedures, stem cell therapy, laser surgery and robotics continue to provide surgeons and patients with greater options than ever before. As history has shown, technological progress leads to new surgical instruments that serve humanity’s eternal pursuit of health and wellbeing.
Improving Manufacturing and Metallurgy

The materials used in the manufacture of surgical instruments today include: metals (titanium, copper, silver, etc.), metal alloys, silicone, latex, plastics and other synthetic products. These materials can also be used in combination to enhance specialty instrument applications. With the increase in disposable instrumentation; advances in robotics; electronic and computerized components; and image guided systems, new materials and new surgical instruments are being developed every day that will revolutionize the way surgery is performed.

However, most types of surgical instruments are still made from stainless steel. Stainless steel (also known as inox steel) is a steel alloy with a minimum of 10.5% chromium content by mass. Unprotected carbon steel rusts easily when exposed to the elements, but stainless steel contains enough chromium to block oxygen diffusion to the steel surface, forming a passive film of chromium oxide which prevents surface corrosion. Stainless steel also has special mechanical features: it is strong and hard and absorbs energy without breaking.

Stainless steel is not actually “stainless” or fully stain-proof. It is stain resistant and does not easily spot, corrode or rust with water the way ordinary, carbon steel does. Stainless steel is ideally suited for the surgical suite, because it is rust resistant, it can be honed to an extremely sharp edge or fine point, and it can be hardened to maintain the delicate, yet precise requirements of the surgeon. Proper care and handling will ensure that instruments made of stainless steel will last from two to five years, or longer, depending on the grade of the steel and bonding used.

There are over 150 grades of stainless steel, and several grades of stainless steel are used to produce surgical instruments with special requirements for hardness, sharpness or malleability. The primary grades used in the manufacture of instruments are Austenitic and Martensitic steels. Austenitic stainless steel is the softer, more malleable type within the 300 Series; Martensitic is the hardened steel within the 400 Series.

The 300 Series is used for probes, dilators, retractors and basins. It has the following characteristics:

- Extreme corrosion resistance
- Non-magnetic
- Contains high chromium content and nickel
Workable and malleable

Cannot be heat treated to differing degrees of hardness.

The 400 Series is used for hemostats, needle holders, scissors, clamps, forceps, etc. It has the following characteristics:

- Good corrosion resistance
- Heat treated to varying degrees of hardness and sharpness
- High carbon content
- Strong but more brittle
- Resistant to breakage, used for precise cutting edges
- Magnetic.

The highest quality, 410 grade stainless is used for gripping instruments like forceps, tweezers, retractors, dressing forceps, etc. 420 grade stainless is used for cutting instruments such as bone rongeurs, chisels, gouges, and scissors.

Gold plating on an instrument means that tungsten carbide has been introduced – tungsten carbide is an extremely hard metal that is used to laminate high grade stainless steel to increase and maintain sharpness, strength and gripping capability and shelf life.

The Manufacturing Process

Surgical instruments are manufactured in response to the ever increasing need for variety and efficiency in the surgical arena. As there are thousands of instrument patterns, the production processes for various instruments differ (there are literally hundreds of manufacturing processes), but once the raw materials are in place the manufacturing process can begin. Following are the major manufacturing steps utilized to create surgical instruments:

- **Forging:** The all-important process of stamping a rough outline of the instrument from a blank block of stainless steel. There are two types of forging – “hot forged” and “cold forged”. The majority of instruments are heat forged; the excess material (called the flash) is trimmed to a more desirable shape and cooled. One of the advantages of stainless steel is its ability to be fabricated by all types of manufacturing techniques – Austenitic steels can be folded, bent, roll formed and hot or cold forged, etc.
- **Milling:** As the excess material is removed, a variety of features are crafted into the instruments – serrations, ratchets, male and female halves of ring handled instruments are assembled, etc.

- **Grinding and Filing:** Additional rough material removing processes are utilized, with different types of grinding wheels and files. This is a critical stage for quality checking and finishing applications to each instrument.

- **Heat Treatment:** The process of heating and cooling the instruments in a controlled fashion to change the instrument’s mechanical properties without changing the original shape or design. Instruments are fine-tuned, hardened and tempered to improve performance characteristics.

- **Chemical Treatment:** The purpose of the chemical treatment is to clean the steel; remove any particles of iron, cast iron, low alloy steel etc.; to create a specific finish; and increase corrosion resistance. Polishing determines the finish (shiny/mirror-finish, satin finish, matte finish or ebony). Passivation restores the corrosion-resistant surface by removing free iron – immersing the steel in an oxidant, acidic solution and forming a thin, transparent oxide film layer for protection.

- **Final Inspection:** During final inspection, the instruments are checked and tested at every critical point – tips, blades, ratchets, etc. They are etched with the stencils of the company name, part number and the country of origin.
Chapter III

Parts of the Instrument

Surgical instruments are specially designed tools or devices that perform a variety of procedures or operations. The overall design of an instrument is based on the function it will ultimately perform. All instruments have a basic design and are augmented and enhanced (length and curvature of blades, teeth, serrations, etc.) to provide additional functionality or to accommodate physician requirements and preference.

The size, length and width of a surgical instrument usually determines the type of surgery intended. For example, 12” scissors and forceps are used for cardio, thoracic and gynecology. 4” delicate scissors and forceps are used for pediatric, ophthalmic and plastic surgeries.

- Scissors are used to cut tissue or other materials;
- Forceps have interlocking teeth or serrated jaws used to grasp tissue;
- Sponge and towel clamps hold gauze or wall-off surgical areas;
- Needle holders drive suture needles through tissue;
- Retractors access and expose wounds;
- Hooks grasp bone, tissue and suture strands during procedures;
- Curettes cut or scrape bones or sockets;
- Bone files and rasps smooth bone and cartilage;
- Bone chisels and osteotomies cut or mark a bone.

Instrument designs include: tips; jaws or blades; spring joints; screw joints or box locks; ratchets; shanks; and finger rings.
Box Lock Instruments

Hemostats, Clamps, Needle Holders

Kelly Hemostatic Forceps
Screw Lock Instruments

Scissors

Operating Scissors
Dressing Forceps and Tissue Forceps

Dressing Forceps
Retractors

Volkman Retractor
Chapter IV

Instrument Categorization

Surgical instruments are one of the most important components of a surgical procedure, and they are quite literally an extension of the practitioner’s hands. When the surgical team is appropriately acquainted with the name, function and proper handling of the multitude of instruments available to them, it not only enhances the surgical procedure, but it positively shapes the entire experience for the ultimate end user – the patient.

All instruments are categorized by function. The nine categories are: Accessory; Clamping and Occluding; Cutting and Dissecting; Grasping and Holding; Dilating and Probing; Exposing and Retracting; Aspirating and Suctioning; Stapling and Suturing; and Viewing.

- **Accessory**: An accessory is any instrument that does not fit into a category, but is an important part of the surgical procedure and has a specific function. Examples of accessories are: mallets, harmonic scalpels and guide pins.

- **Clamping and Occluding**: Used to compress or close blood vessels or hollow organs, for hemostasis or occlusion. Examples are: Crile hemostatic forceps and tube occluding clamps.

- **Cutting and Dissecting**: Used to separate or incise, dissect or excise soft or compact tissue with a variety of cutting edges and designs. Examples are: scalpels, Iris scissors and curettes.

- **Grasping and Holding**: Grasping and holding instruments are designed to grip, manipulate and stabilize body tissues. They may also be used to extract foreign bodies. Examples are: Allis tissue forceps, and Backhaus towel clamps.

- **Dilating and Probing**: These instruments are used to probe, expand, examine or create an anatomic passage; to enlarge or open a stricture or introduce another instrument. Examples are: Hank uterine dilator, Sklar mini-dilators/OS finders and probes with eyes.

- **Exposing and Retracting**: Designed to pull aside or hold back wound edges and other tissues to gain access to the surgery or operation site. These instruments are usually called “retractors,” with blunt “blades” that may be curved or angled, or with sharp or dull prongs. Blades vary in size, and some retractors are double ended or come in a
variety of shapes, lengths and widths depending on functional needs. Examples are: bone hooks, Volkman retractors and Zalkind retractors.

- **Aspirating and Suctioning:** Aspirating and suctioning instruments are used to remove blood and other fluids and debris from the operating site. These instruments are hollow tipped and come in a variety of sizes and shapes for ease of access. Examples are: cannulas, aspiration suction tubes.

- **Stapling and Suturing:** Used to align, secure and approximate the edges of soft or compact tissue for healing; they may employ implants like sutures, staples, clips wires or screws. Examples are: needle holders, suture needles and terminal end staplers.

- **Viewing:** Viewing instruments allow the practitioner to illuminate a cavity or structure such as a nasal cavity. Examples include: endoscopes, nasal specula and lighted vaginal specula.
Chapter V

The Top 35 In-Demand Instruments

1. Lister Bandage Scissors
2. Operating Scissors – Straight
3. Operating Scissors – Curved
4. Mayo Scissors - Straight
5. Mayo Scissors - Curved
6. Sklar Edge™ Tungsten Carbide - Operating Scissors – Straight
7. Sklar Edge™ Tungsten Carbide - Operating Scissors – Curved
8. Sklar Edge™ Tungsten Carbide - Iris Scissors
9. Hartmann Mosquito Forceps - Straight
10. Hartmann Mosquito Forceps - Curved
11. Halsted Mosquito Forceps - Straight
12. Halsted Mosquito Forceps - Curved
13. Kelly Hemostatic Forceps - Straight
14. Kelly Hemostatic Forceps - Curved
15. Rochester Pean Forceps - Curved
16. Rochester Pean Forceps - Straight
17. Crile Hemostatic Forceps
18. Dressing Forceps
19. Tissue Forceps
20. Mayo-Hegar Needle Holder
21. Spencer (Littauer) Stitch Scissors
22. Sklarlite™ Extra Delicate (XD) Metzenbaum-Lahey Dissecting Scissors
23. Econo Disposable Operating Scissors
24. Allis Tissue Forceps
25. Iris Scissors – Straight
26. Iris Scissors – Curved
27. Backhaus Towel Clamp
28. Adson Tissue Forceps
29. Adson Dressing Forceps
30. Debakey Atraumatic Tissue Forceps
31. Metzenbaum Dissecting Scissors
32. Foerster Sponge Forceps
33. Pederson Vaginal Speculum
34. SklarSpec BriteLite™ Disposable Vaginal Speculum
35. Econo Disposable Iris Forceps
Lister Bandage Scissors

Other Names: Bandage scissors, nurse’s scissors

Category: Cutting and dissecting

Uses: Versatile instrument with multiple uses; mostly used for sizing dressings and removing circumferential bandages, but also cuts tougher materials such as plaster, fabric and umbilical cord.

Description: The jaws are angled with the lower blade being slightly longer. The tip of the lower blade features a flattened, blunt nodule designed to slide between bandages and skin without cutting the patient. This feature allows the Lister Bandage Scissor to be used during cesarean sections - opening the uterus without causing damage to the baby. Ring handles can be equal in size or with one ring larger; scissors are angled with smooth blunt/blunt tips, and various lengths.

Notes: The screw must be securely tightened; check for signs of wear and replace when dull or professionally sharpen.

Shown: Sklar OR Grade - 7 ¼” smooth, blunt/blunt tips - Product # 11-1072
Operating Scissors – Straight

Other Names: Surgical scissors, suture scissors, nurse’s scissors

Category: Cutting and Dissecting

Uses: Used for general cutting of sutures, gauze and other materials; sharp blades are used to cut tougher tissue and are frequently used for dissection; blunt blades are used for cutting materials such as tubing or gauze.

Description: Multi-purpose cutting and dissecting scissors with sharp/blunt, sharp/sharp, or blunt/blunt tip configurations; straight or curved and varying sharpness and lengths.

Notes: The screw must be securely tightened; check for signs of wear and sharpen blades regularly as needed.

Shown: Sklar OR Grade – 5 ½” straight, sharp/blunt tips - Product # 14-1055
Operating Scissors – Curved

Other Names: Surgical scissors, suture scissors, nurse’s scissors

Category: Cutting and Dissecting

Uses: Used for general cutting of sutures, gauze and other materials; sharp blades are used to cut tougher tissue and are frequently used for dissection; blunt blades are used for cutting materials such as sutures, tubing or gauze.

Description: Multi-purpose cutting and dissecting scissors, with sharp/blunt, sharp/sharp or blunt/blunt tip configurations; straight or curved and varying sharpness and lengths.

Notes: Screw must be securely tightened; check for signs of wear and sharpen blades as needed.

Shown: Sklar OR Grade – 5 ½” curved, sharp/blunt tips – Product # 14-2055
Mayo Scissors – Straight

Other Names: Dissecting scissors, suture scissors, heavy tissue scissors, Mayos

Category: Cutting and Dissecting

Uses: A versatile instrument used in multiple procedures and settings; the straight version is primarily used for cutting surface tissue or sutures, but both straight and curved may be used interchangeably depending on procedure and physician preference.

Description: With a standard beveled blade, Mayos are straight or curved, and have a variety of lengths, a selection of special features and are made with blunt tips.

Notes: These scissors are used for cutting tissue. The screw must be securely tightened; check for signs of wear and sharpen regularly as needed.

Shown: Sklar OR Grade - 6 ¾” straight, smooth, blunt/blunt tips - Product # 15-1567
Mayo Scissors – Curved

**Other Names:** Dissecting scissors, suture scissors, heavy tissue scissors, Mayos

**Category:** Cutting and Dissecting

**Uses:** These scissors are versatile and used in multiple procedures and settings; the curved version are commonly used for cutting or dissecting deep or dense tissue, but both straight and curved Mayos may be used interchangeably depending on procedure and physician preference.

**Description:** With a standard beveled blade, Mayo scissors are straight or curved, have a variety of lengths, a selection of special features and are made with blunt or sharp tips.

**Notes:** The screw must be securely tightened; check for signs of wear and sharpen regularly as needed.

Shown: Sklar OR Grade - 6 ¾” curved, smooth, blunt/blunt tips - Product # **15-2567**
**Other Names:** Surgical scissors

**Category:** Cutting and Dissecting

**Uses:** These scissors are used for general, multipurpose cutting and dissecting. Sharp scissors cut through tougher tissue and are frequently used for dissecting. Blunt scissors are more often used for cutting tubing or gauze.

**Description:** Tungsten Carbide instruments are identified by gold handles. With three available tip configurations: sharp/sharp, sharp/blunt and blunt/blunt, straight or curved and multiple lengths.

**Notes:** TC instruments are designed to stay sharp for a significantly longer period of time than other standard instruments. TC inserts are permanently bonded to the instrument, maximizing control and precision.

Shown: Sklar Premium OR Grade - 5 ½” straight, smooth, sharp/sharp tips - Product # 16-1055
Other Names: Surgical scissors

Category: Cutting and Dissecting

Uses: These scissors are used for general, multipurpose cutting and dissecting. Sharp scissors cut through tougher tissue and are frequently used for dissecting. Blunt scissors are more often used for cutting tubing or gauze.

Description: Tungsten Carbide instruments are identified by gold handles. With three available tip configurations: sharp/sharp, sharp/blunt and blunt/blunt, straight or curved and multiple lengths.

Notes: TC instruments are designed to stay sharp for a significantly longer period of time than other standard instruments. Inserts are permanently bonded to the instrument, maximizing control and precision.

Shown: Sklar Premium OR Grade - 5 ½” curved, smooth, sharp/sharp tips - Product # 16-1155
Sklar Edge™ Tungsten Carbide Iris Scissors

Other Names: Eye suture scissors, plastic scissors

Category: Cutting and Dissecting

Uses: Originally designed for ophthalmic procedures, Tungsten Carbide Iris Scissors have become a multipurpose instrument used in various surgical environments, emergency rooms, OB/GYN and dermatologic procedures. These fine, thin scissors are ideal for detailed dissection of fine tissue and fine suture removal.

Description: Identified by their gold coated finger rings, the tungsten carbide is bonded onto the scissors for maximized control and precision.

Notes: Tungsten Carbide scissors provide an exceptionally durable and hard cutting edge: designed to stay sharp for a longer period of time than standard scissors.

Shown: Sklar Premium OR Grade - 4 ½” straight, smooth, sharp/sharp tips – Product # 16-2405
Hartmann Mosquito Forceps – Straight

Other Names: Baby snaps, baby mosquitos

Category: Clamping and Occluding

Uses: Used as both a hemostat and for fine tissue dissection in shallow wounds or procedures. Most commonly used in plastic and vascular surgeries, they can also be used in pediatric and ophthalmologic procedures. Mosquito forceps can be used as a clamping instrument to halt the blood flow so that cauterization or ligation can be performed. They are also used for holding small, fine sutures.

Description: Known for their fine tips and short, fully serrated jaws, they are short and heavy with serrated tips and various lengths.

Notes: Inspect ratchet and box lock, as well as alignment and serrations.

Shown: Sklar OR Grade - 3 ½” straight, serrated tips - Product # 17-1235
Hartmann Mosquito Forceps – Curved

**Other Names:** Baby snaps, baby mosquitos

**Category:** Clamping and Occluding

**Uses:** Used as both a hemostat and for fine tissue dissection in shallow wounds or procedures. Most commonly used in plastic and vascular surgeries, they can also be used in pediatric and ophthalmologic procedures. Mosquito forceps can be used as a clamping instrument to halt the blood flow so that cauterization or ligation can be performed. They are also used for holding small, fine sutures.

**Description:** Known for their fine tips and short, fully serrated jaws, they are short and heavy with serrated tips and various lengths.

**Notes:** Inspect ratchet and box lock, as well as jaw alignment and serrations.

Shown: Sklar OR Grade - 3 ½” curved, serrated tips - Product # **17-1335**
Halsted Mosquito Forceps – Straight

Other Names: Mosquitos, stats, clamps

Category: Clamping and Occluding

Uses: Used in multiple procedures as a hemostat for clamping small blood vessels.

Description: A small curved or straight clamp, with fine tips and short, fully serrated jaws. Ratcheted finger ring handle provides a secure, locking grip to halt blood flow. Standard length is 5”. A toothed version is available for grasping delicate tissue.

Notes: Not appropriate for use with large blood vessels or arteries. Inspect jaws, alignment, box lock and ratchet frequently.

Shown: Sklar OR Grade - 5” straight, serrated - Product # 17-1450
Halsted Mosquito Forceps – Curved

Other Names: Mosquitos, stats, clamps
Category: Clamping and Occluding
Uses: Used in multiple procedures as a hemostat for clamping small blood vessels.
Description: A small curved or straight clamp, with fine tips and short, fully serrated jaws. Ratcheted finger ring handle provides a secure, locking grip to halt blood flow. Standard length is 5”. The Halstead Forceps is finer and more delicate than Hartmann Mosquito Forceps. A toothed version is available for grasping delicate tissue.
Notes: Not appropriate for use with large blood vessels or arteries. Inspect jaws, alignment, box lock and ratchet frequently.

Shown: Sklar OR Grade - 5” curved, serrated - Product # 17-1550
Kelly Hemostatic Forceps – Straight

Other Names: Kellys, clamps, snaps, hemostat

Category: Clamping and Occluding

Uses: Primarily used for clamping large blood vessels, occluding blood vessels before cauterization or ligation, and manipulating heavy tissue. They may also be used for soft tissue dissection.

Description: Kellys are available curved or straight, with varying lengths. The jaws are half serrated, and are 1/3 the length of the shanks; serrations are ½ the length of the jaws. They may be available with extra heavy pattern.

Notes: Similar to Rankin Forceps, Kellys are shorter and heavier. Inspect box lock and alignment. The ratchet should hold firmly on each tooth.

Shown: Sklar OR Grade - 5 ½” straight, serrated tips - Product # **17-2055**
Kelly Hemostatic Forceps – Curved

**Other Names:** Kellys, clamps, snaps, hemostat,

**Category:** Clamping and Occluding

**Uses:** Primarily used for clamping large blood vessels, occluding blood vessels before cauterization or ligation, or manipulating heavy tissue. They may also be used for soft tissue dissection.

**Description:** Kellys are available straight or curved with varying lengths. The half serrated jaws are 1/3 the length of the shanks and serrations ½ the length of the jaws. They may be available with an extra heavy pattern.

**Notes:** Similar to Rankin Forceps – Kellys are shorter and heavier. Inspect box lock and alignment. The ratchet should hold firmly on each tooth.

Shown: Sklar OR Grade - 5 ½” curved serrated tips - Product # 17-2155
Rochester Pean Forceps – Curved

Other Names: Dressing forceps, Kelly, Pean, big hemostat

Category: Clamping and Occluding

Uses: Clamps or occludes larger tissue and vessels to control bleeding.

Description: Available in multiple lengths; curved or straight, with full horizontal serrations on the jaws; a versatile instrument used in multiple procedures.

Notes: Never use Rochester Pean Forceps to clamp tubing. Inspect jaws, box lock, alignment and ratchet.

Shown: Sklar OR Grade - 6 ¼” curved, serrated - Product # 17-2262
Rochester Pean Forceps – Straight

Other Names: Dressing forceps, Kelly, Pean, big hemostat

Category: Clamping and Occluding

Uses: Clamps or occludes larger tissue and vessels to control bleeding.

Description: Available in multiple lengths; curved or straight, with full horizontal serrations on the jaws; a versatile instrument used in multiple procedures.

Notes: Never use Rochester Pean Forceps to clamp tubing. Inspect jaws, box lock, alignment and ratchet.

Shown: Sklar OR Grade - 6 ¼” curved, serrated - Product # 17-3055
Crile Hemostatic Forceps

Other Names: Hemostat, snaps, clamps, stats

Categories: Clamping and Occluding

Uses: Most commonly used for clamping blood vessels or tissue before cauterization or ligation. May also be used for soft tissue dissection.

Description: Curved or straight with serrated tips and various lengths. This instrument is unique because of the serrations along the entire length of the jaw, and jaws that are half the length of the shank.

Notes: Often confused with the Kelly Hemostat or the Rochester Pean; the curved Crile is the most widely used clamp in all specialty areas. Inspect box lock, and alignment. The ratchet should hold firmly on each tooth; inspect jaws for blood and particulate.

Shown: Sklar Premium OR Grade - 5 ½” curved, serrated jaws - Product # 17-3155
Dressing Forceps

Other Names: Thumb forceps, pick-ups, plain forceps

Category: Grasping and Holding

Uses: Used for holding dressing materials such as cotton and gauze during surgical procedures, changing dressings or packing wounds.

Description: Thumb forceps are straight with rounded, serrated tips.

Shown: Sklar OR Grade - 6” straight, serrated - Product # 19-1060
Tissue Forceps

Other Names: Dressing forceps, smooth forceps (toothless), thumb forceps

Category: Grasping and Holding

Uses: Used for manipulating various types of tissues in a multitude of procedures, as well as for wound closure.

Description: Commonly toothed for gripping, these instruments have spring tension shanks that determine how far they will open. The greater the tension, the thicker the tissue that can be held. Available in several lengths to accommodate specific procedures and user preference.

Notes: Make sure teeth are properly aligned; sharp teeth can compromise gloves and skin.

Shown: Sklar OR Grade - 6” straight, 1x2 teeth - Product # 19-1260
Mayo-Hegar Needle Holder

*Other Names:* Heavy needle driver

*Category:* Grasping and Holding/Suturing

*Uses:* Due to its versatility, the Mayo-Hegar Needle Holder is one of the most commonly used surgical tools for both human and animal procedures. Used for intermediate to heavy weight needles while suturing. Shorter lengths of this needle holder may be used in oral, gynecological or dermatological procedures. Longer lengths are used for deep tissue suturing or in large animal procedures.

*Description:* With a wide jaw and rounded tips it is used to secure heavier suture needles. Tungsten carbide inserts also maximize control and precision.

*Notes:* Check groove and serrations; inspect box lock and ratchet.

Shown: Sklar OR Grade - 6”straight, cross-serrated jaws with groove - Product # 20-2060
Spencer (Littauer) Stitch Scissors

Other Names: Suture scissors, stitch scissors

Category: Cutting and Dissecting

Uses: Primarily used for small suture removal.

Description: Scissors have a small hook shaped tip on one blade that slides under sutures to slightly lift them before cutting for removal. This hook also holds the suture so it does not slip off the blade of the scissors prior to cutting. Available in varying lengths, with straight, smooth blunt/blunt tips – tips are small and delicate for removing smaller sutures.

Notes: These scissors should not be used for cutting tissue. Check tips and screw for wear; sharpen as needed.

Shown: Sklar OR Grade - 3 ½” straight, smooth, blunt/blunt tips - Product # 22-2835
Sklarlite™ Extra Delicate (XD) Metzenbaum-Lahey Dissecting Scissors

**Other Names:** Dissecting scissors

**Category:** Cutting and Dissecting

**Uses:** Used for dissecting and cutting tissue only

**Description:** The Extra Delicate (XD) scissors, are lighter and more delicate than standard instruments, allowing the surgeon the highest degree of precision with the least amount of fatigue.

**Notes:** Not recommended for cutting sutures, drains or heavy tissue

Shown: Sklar Premium OR Grade - 4 ½” straight, smooth, blunt/blunt tips - Product # 23-1176
Econo Disposable Operating Scissors

Other Names: Surgical scissors

Category: Cutting and Dissecting

Uses: With multiple lengths, these scissors are used for general, multipurpose cutting and dissecting.

Description: With three tip configurations – sharp/sharp, blunt/blunt and sharp/blunt and various curvatures, operating scissors are multi-purpose.

Notes: Available in boxes of 12.

Shown: Econo Non-Sterile Disposable Floor Grade – 5 ½” straight, smooth, sharp/sharp tips – Product # 21-275
Allis Tissue Forceps

Other Names: Allis forceps

Category: Grasping and Holding

Uses: Used to lift, hold and retract slippery or dense tissue that is being removed; commonly used with tonsil, vaginal, breast and thyroid tissue.

Description: This instrument is available in a variety of lengths. Finger ring, ratcheted forceps with interlocking teeth; the tip style varies to meet the needs of the procedure or preferences of the surgeon - 3x4, 4x5, 5x6, and 6x7.

Notes: Check to make sure teeth are properly aligned; inspect box lock and ratchet.

Shown: Sklar OR Grade - 6” straight, 4x5 teeth - Product # 36-2160
Iris Scissors – Straight

Other Names: Eye suture scissor, plastic scissor

Category: Cutting and Dissecting

Uses: Originally designed for ophthalmic procedures, Iris Scissors have become multipurpose, used in various surgical procedures with delicate tissue dissection and the cutting of fine sutures.

Description: Fine, sharp scissors; ideal for detailed dissection of fine tissue and fine suture removal. Also used in emergency rooms for OB/GYN and dermatologic procedures; curved or straight with sharp tips.

Notes: Do not place heavy objects on top of delicate scissors; do not use them for anything other than delicate tissue dissection or they will dull quickly; check blades for wear and screw for tightness; tip protectors should be used.

Shown: Sklar OR Grade - 4 ½” straight, smooth, sharp/sharp tips - Product # 47-1145
Iris Scissors – Curved

Other Names: Eye suture scissor, plastic scissor

Category: Cutting and Dissecting

Uses: Originally designed for ophthalmic procedures, Iris Scissors have become multipurpose, used in various surgical procedures with delicate tissue dissection and the cutting of fine sutures.

Description: Fine, sharp scissors; ideal for detailed dissection of fine tissue and fine suture removal. Also used in emergency rooms for OB/GYN and dermatologic procedures; curved or straight with sharp tips.

Notes: Do not place heavy objects on top of delicate scissors; do not use them for anything other than delicate tissue dissection or they will dull quickly; check blades for wear and screw for tightness; tip protectors should be used.

Shown: Sklar OR Grade – 4 ½” curved, smooth, sharp/sharp tips - Product # 47-1245
Backhaus Towel Clamp

Other Names: Towel clip

Category: Grasping and Holding

Uses: Perforating clip is used for grasping tissue, securing towels or drapes, and holding or reducing small bone fractures.

Description: A perforating clamp with tine-like jaws, locking ratchets and sharp, curved tips of varying lengths.

Notes: Caution – sharp tips can penetrate gloves and skin. Inspect box lock, ratchets and alignment of jaws.

Shown: Sklar OR Grade - 3 ½” curved, 1 x 1 prongs - Product # 47-2935
Adson Tissue Forceps

**Other Names:** Adson, rat tooth

**Category:** Grasping and Holding

**Uses:** Used for holding and manipulating delicate tissues; aligns the edges of a wound during skin stapling; grasps superficial tissue.

**Description:** Adson forceps are differentiated by jaw style, fine tooth tips and/or serrations. They have a wide flat thumb grasp area that is commonly horizontally serrated.

Shown: Sklar OR Grade - 4 ¾” straight, smooth jaws, 1 x 2 teeth - Product # 50-3047
Adson Dressing Forceps

Other Names: Ewald forceps, Adson

Category: Grasping and Holding

Uses: Thumb forceps used for holding dressing material such as cotton and gauze during surgical procedures, changing dressings or packing wounds.

Description: Wide, thumb grasp for increased precision and control – used for routine and in-office procedures.

Shown: Sklar Merit Physicians Grade – 4 ¼” straight, serrated edges - Product # 50-3147
Debakey Atraumatic Tissue Forceps

**Category:** Grasping and Holding

**Uses:** A versatile, popular tissue forceps used in numerous surgical procedures; commonly used for grasping fine tissue and blood vessels or soft tissue dissection.

**Description:** Straight or angled, the narrow tips and atraumatic teeth cause little or no damage to tissues; they are used in all specialty areas. Available in various lengths, and with a variety of tip dimensions, with an elongated, blunt tip.

Shown: Sklar OR Grade - 7 ¾” straight, 1x2 rows of teeth, 2mm - Product # **52-5177**
Metzenbaum Dissecting Scissors

Other Names: Tissue scissors, Metz, dissecting scissors, delicate scissors

Category: Cutting and Dissecting

Uses: These scissors are used for dissecting and cutting delicate tissue and blunt dissection.

Description: Longer, thinner scissors; with a relatively long shank to blade ratio; may have straight or curved blades, and blunt tips.

Notes: Designed for cutting delicate tissue only; not designed for cutting sutures, drains or heavy tissue.

Shown: Sklar OR Grade - 7” curved, smooth, blunt/blunt - Product # 75-5670
Foerster Sponge Forceps

Other Names: Foerster-Ballenger Sponge Forceps

Category: Grasping and Holding

Uses: Commonly used in surgical procedures to hold gauze that absorbs excess fluids and blood from a surgical site or hemostasis. Often used in bariatric surgeries because of their longer length. The curved version may be used for removing the placenta in OB/GYN procedures.

Description: The ratcheted locking mechanism of these finger ring forceps securely grip the gauze into place. They have oval, fenestrated, serrated tips with opposing faces.

Notes: Inspect ratchet, box lock and check for proper alignment.

Shown: Sklar OR Grade - 9 ½” straight, serrated - Product # 87-2195
Other Names: Duckbill, bivalve speculum

Category: Retracting and Exposing

Uses: Gynecological instrument used for performing pelvic examinations, Pap smears and examining the cervix.

Description: A double blade duckbill speculum inserted with the blades closed. The blades are then opened by an external lever and screw. The Pederson speculum has narrower blades than the Graves speculum and the practitioner can best determine which type and size speculum is most appropriate for the patient.

Shown: Sklar OR Grade - 4”x 7/8” blades, medium - Product # 90-3713
SklarSpec Britelite™ Disposable Vaginal Speculum

Other Names: BriteLite

Category: Retracting and Exposing

Uses: A gynecological instrument used for performing pelvic examinations, Pap smears and examining the cervix.

Description: A clear plastic, double blade duckbill speculum that provides an LED light source, 360 degree visibility and one hand operation for the user.

Notes: Reduction of thermal shock and disposable; cases of 100

Shown: Sklar Non-Sterile Disposable - medium - Product # 96-0921
Econo Iris Forceps

Other Names: Tissue forceps, eye tissue forceps

Category: Grasping and Holding

Uses: Most commonly used in ophthalmic procedures for holding tissue.

Description: Available serrated or toothed, with varying curvatures.

Notes: Disposable in boxes of 12.

Shown: Non-sterile disposable Floor Grade – 4 ¼” straight, 1x2 teeth - Product # 21-124
Chapter VI

Instrument Sets

Instrument sets, surgery trays and brush sets are assembled for convenience, according to practice specialty, procedure to be performed and the need for economy of time and cost. Instrument sets are often stored for later use and organized according to procedure, major or minor designation and/or specialty area. Examples of Basic Surgery Sets are:

1. Instrument Cleaning Brush Set
2. Minor Surgery Tray
3. Minor Basic Surgery Set
Instrument Cleaning Brush Set

Uses: Cleaning brushes are used in the instrument decontamination process: cleaning brush sets contain the most common implements for all types of cleaning procedures, from the smallest hand held instruments to suction tubes and endoscopes.

Description: Includes: Cannula Cleaning Brush 12” 3mm, 3 pack; Cannula Cleaning Brush 18” 5mm, 3 pack; Cannula Cleaning Brush 24” 7mm, 3 pack; Cannula Cleaning Brush 24” 10mm, 3 pack; Suction Tube Brush 6” 1.6mm, 3 pack; Suction Tube Brush 8” 2.6mm, 3 pack; Suction Tube Brush 8” 2mm, 3 pack; Suction Tube Brush 8” 3.3mm, 3 pack; Tube Brush 8” 4mm, 3 pack; Surface Cleaning Brush, 3 pack; Double End Brush Nylon, 3 pack; Brush Stainless Steel Bristle, 3 pack; Brush Nylon Bristle, 3 pack – set.

Notes: Non-sterile and latex free (stainless steel/plastic/nylon).

Shown: Product # 10-1426
Minor Surgery Tray

**Uses:** Ready to use surgery trays contain the most common instruments and supplies needed for particular functions, procedures or operations.

**Description:** Includes: Scalpel #15”; Mosquito Hemostats, straight and curved; Mosquito Hemostats, straight and curved; Webster Needle Holder; Iris Scissors, curved; Kelly Forceps, straight; OR Scissors, Adson Tissue Forceps; Dressing Forceps; Gauze Sponges; Blue Linen OR Towels; Clear Utility Drape; Instrument Trays.

**Notes:** Cases of 10, disposable, individual sterile packages.

Shown: Sklar Sterile Grade – Product # 96-1744
Minor Basic Surgery Set

Uses: Specialized surgical packs contain the most common instruments needed for a particular function, procedure or operation.

Description: Scalpel Handles #3 and #4; Yankauer Suction Tube; Mayo Dissecting Scissors, curved 5 ½”, 6 ¼”; Halsted Mosquito Forceps, straight 5”; Halsted Mosquito Forceps; Crile Forceps, straight; Crile Forceps, curved; Dressing Forceps; Tissue Forceps 1x2 teeth; TC Mayo-Hegar NH, serrated; Sklarlite Operating Scissors S/S, straight”; Sklarlite Mayo Scissors, curved; Probe Double End 6”; Allis Tissue Forceps 4x5 teeth; Adson Brown Tissue Forceps; Backhaus Towel Clamps; Frazier Suction Tube 8 French; Goelet Retractor Double End; US Army Retractors; Zalkind Ribbon Retractors; Senn Retractors, sharp and blunt; Metzenbaum Scissors curved; Foerster Sponge Forceps straight and curved.

Shown: Minor Basic Surgery Set – Sklar Premium OR Grade – Product # 98-1002
Chapter VII

Conclusion

All surgical instruments are designed for a particular purpose. Whether an instrument is curved or straight, long or short, disposable or reusable, it is built and categorized by the function it will ultimately perform. Hemostats are used to occlude vessels, scissors cut and dissect tissue and retractors hold a wound open to expose an operating site.

The volume of different instruments (19,000 items in the Sklar catalogues) and the subtle nuances in their construction can be daunting to those who are new to the surgical team. It is important to remember that learning the name, category, specialty area and parts of an instrument are vital, but the primary focus should always be - how the instrument is used and how it will enhance the surgical procedure and affect the quality of life of the patient.

Instruments are an investment. Correct handling, processing and maintaining instruments increases patient safety by ensuring their proper function. Care and cleaning of instruments will increase their lifespan and decrease the need for repair and replacement. Sklar’s Surgical Instruments: The Care and Cleaning Guide and Surgical Instruments Care and Cleaning Basic Course #2 for CE Credit will provide you with essential information needed to keep reusable instruments in top working order.
Chapter VIII

Surgical Instruments Basic Course #1 – CE Presentation and Lesson Plan:

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