

Instrument Care & Handling

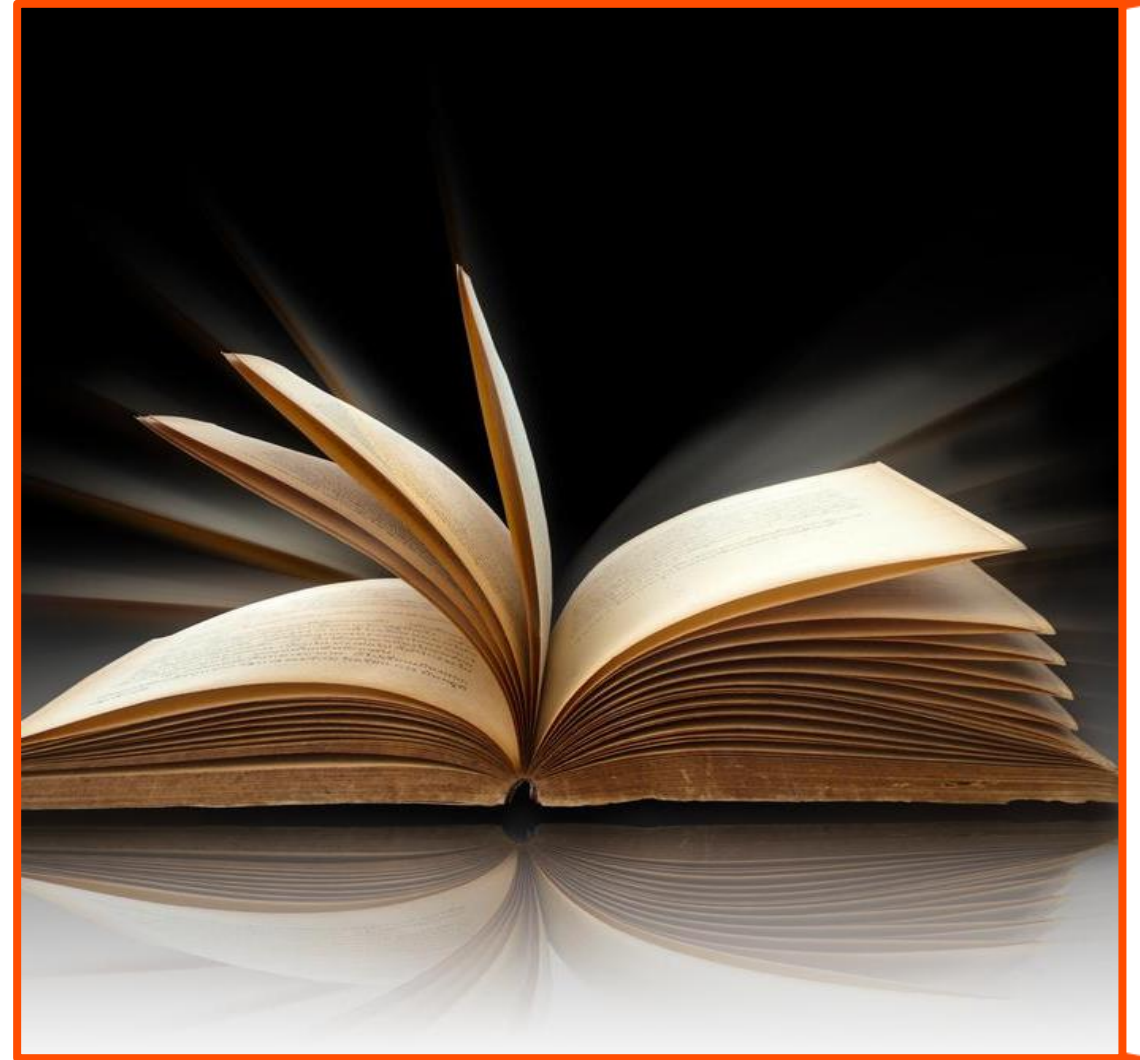
How to Care for Your Microsurgical
Instruments in **5 Easy Steps**

Educational Objectives

By the end of this session, attendees will be able to:

- Outline how stainless steel interacts with different cleaning processes and solutions;
- Differentiate between “staining” and “rusting” and the method by which each issue can be prevented;
- Define tactics for the organization of instrument IFUs, cleaning instructions and other regulatory resources;
- Model process efficiency for microsurgical instrument cleaning, handling and storage;
- Demonstrate inspection and placement of instruments in trays to prevent damage;
- Explain personal accountability and tracking methods for best practices in patient care.

Step 1 Education



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Preventing Corrosion

Katena's stainless steel surgical instruments are made of high-grade specialty steels depending on the instrument's use.

Because stainless steel is an alloy (combination of multiple elements), the metal will "stain less", but is not "stain-proof".

Katena recommends the use of neutral pH "combination" cleaning solutions.

Interpreting "Rust"

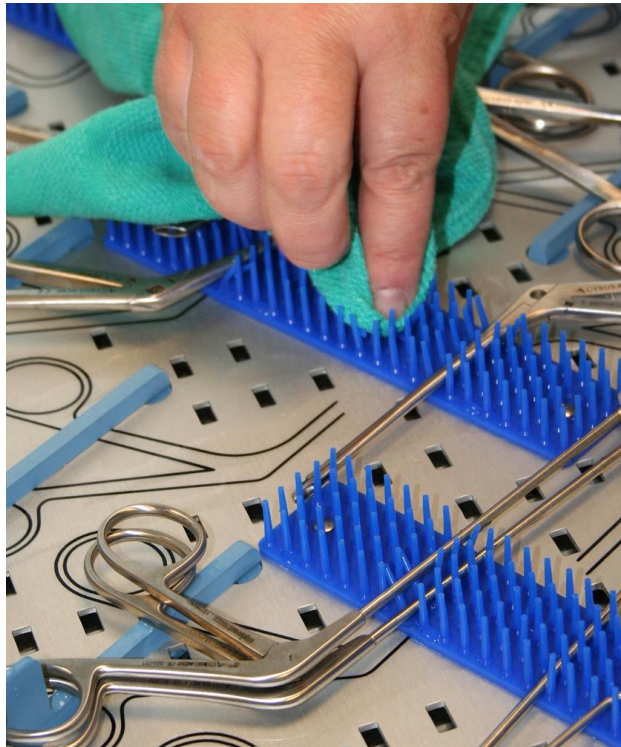
Yellow or brown stains/spots on surgical stainless-steel instruments are frequently mistaken for "rust".

But... improperly maintained boilers (used to generate the steam) for steam sterilizers, baked-on blood and solutions or inappropriate detergents can leave behind a film or mineral deposits on the instruments.



What causes RUST?

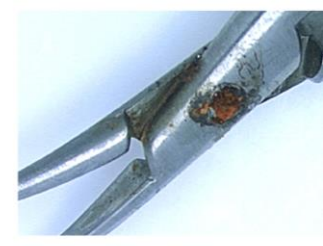
Steel + Water + Air + Time = RUST



Remove any part from the above equation and rusting (oxidation) **will not** occur.

Make sure you...

- ✓ Remove debris during regular cleaning.
- ✓ Do not allow wet instruments to sit for long periods of time.
- ✓ Confirm autoclave dry cycle is complete and effective.



Extra Care in Cleaning

- use neutral pH “combination” cleaning solutions
 - dry and cool instruments **ASAP** after cleaning
- use purified water (distilled, demineralized, DI, etc.) to thoroughly clean & rinse instruments
 - do not use abrasive products or solutions.
 - avoid using agents containing chloride (BSS, Iodides, and Bromides)



Currently, enzymatic cleaners are not recommended for use with eye instruments, especially items with lumens.

Enzymatics maintained below 120° are alive and consume bio-burden. However, the enzymes are indiscriminate and can also digest cornea, iris, etc. without **extra care & copious irrigation.**

Whenever instruments are exposed to enzymatic solutions, it is imperative to validate that sufficient rinsing is performed to remove all residue.

Step 2 Preparation



Keep Instrument and Sterilization Information On Hand & Available

Tray
Contents
and Layout



Reference
Materials



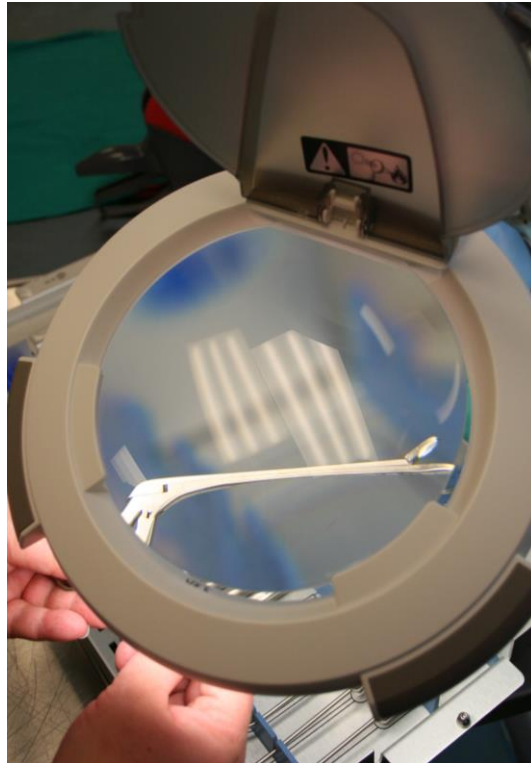
Special
Instructions
and IFUs



When a new instrument is received at the facility...

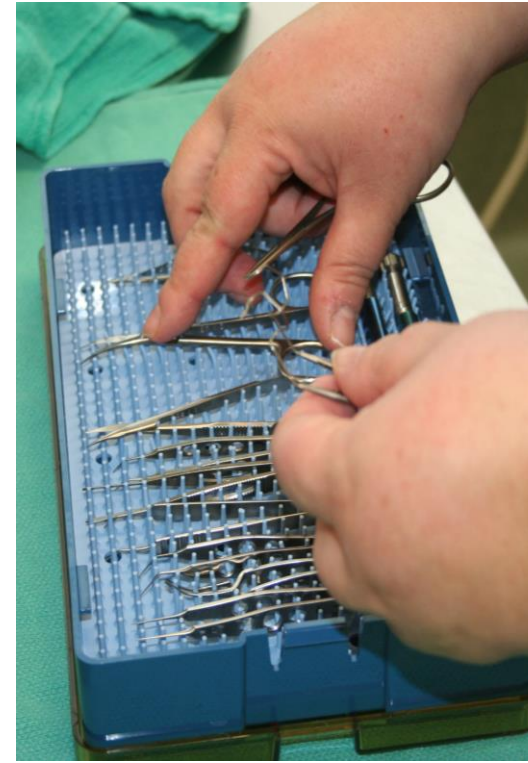
#1 **INSPECTION**

Carefully remove the instrument from packaging and inspect under magnification—inform Katena immediately if you discover any problem.



#2 **CLEANING,** **STERILIZATION** **& PACKAGING**

Even new instruments must be cleaned and sterilized before they are used for the first time.



Step 3 Implementation





In the O.R.

The first step of cleaning ophthalmic microsurgical instruments MUST occur in the Operating Room immediately after use.

Immediately rinse/flush in critical (sterile distilled) water only.

Do not allow blood and debris to dry on the instruments.

If cleaning must be delayed, place groups of instruments in a covered container with neutral pH,
free rinsing detergent.

DO NOT USE TAP WATER

Manual Cleaning

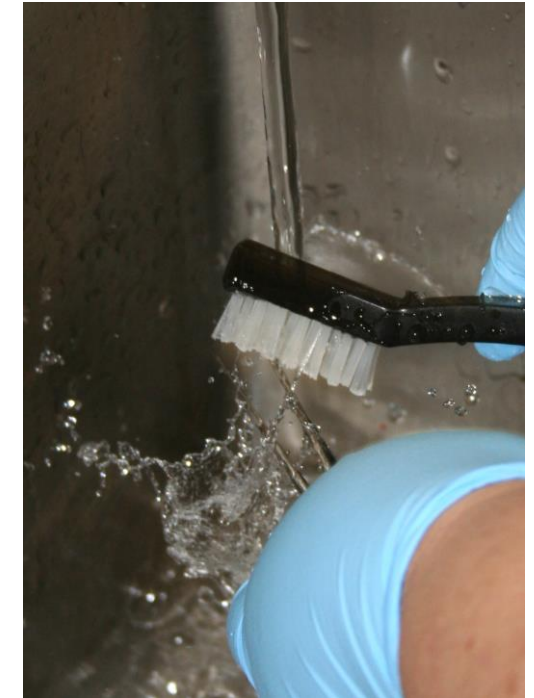
is the prerequisite for disinfecting and sterilizing surgical instruments

Hand washing to remove visible debris is the 1st step when items are received in the decontamination area.

Do not use abrasive pads or cleansers. Use soft instrument brushes designed for this purpose.

Open all hinged instruments and disassemble instruments with removeable parts.

Aspirate/flush cannulated instruments or use special bottle/tube brushes or irrigation/air systems to decontaminate instruments with lumens.



Rinsing Instruments

Copious

amounts of distilled water must be used to rinse and irrigate all cannulated instruments

Ultrasonic Cleaning



Follow manufacturer's recommendations for temperature and detergent selection.

For eye instruments—to prevent TASS (Toxic Anterior Segment Syndrome)—a separate ultrasonic cleaner dedicated to eye surgery is imperative.

Katena also recommends using 2 separate ultrasonic cleaners for specific cleaning and rinsing purposes.

Sort instruments **by similar metal** so that electrolysis will not occur.

Place instruments **in a single layer** (not touching) on a silicone finger mat.

Protect sharp edges or delicate tips from vibrating into the sides or catching on the mesh basket.

Ensure that all items are thoroughly rinsed/flushed after processing in the ultrasonic cleaner.

After rinsing, dry instruments carefully and completely with lint free surgical wipe or blow dry with filtered compressed air.

The ultrasonic cleaner should be emptied when visible debris is seen or (at least) at the end of the surgical day.

Inspection

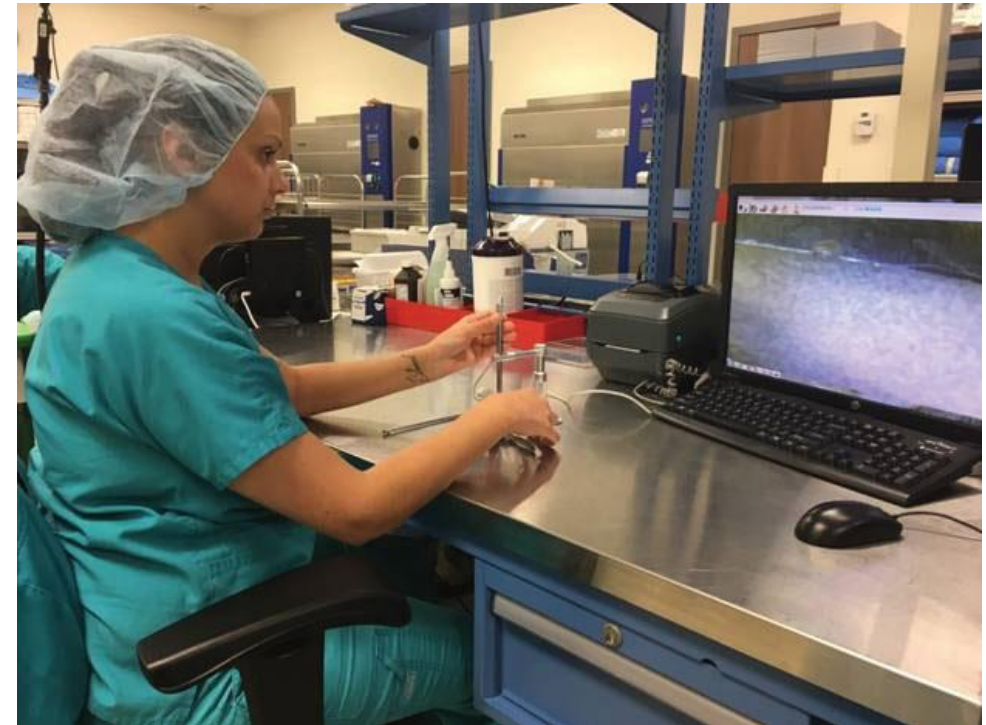
A crucial step in the processing of microsurgical instruments

Inspect **EVERY** instrument after cleaning occurs.

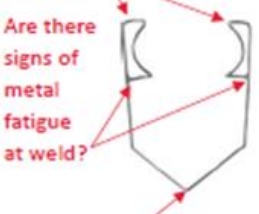
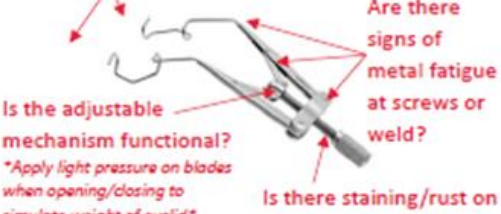

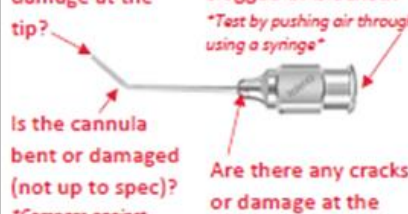





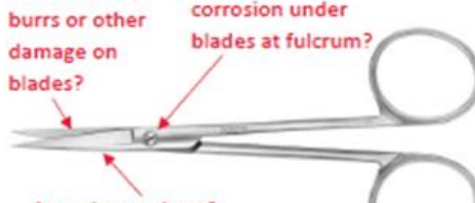
Reprocess any incompletely cleaned items.

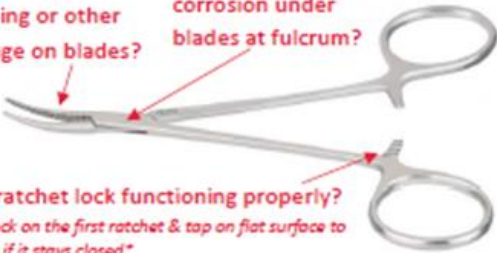
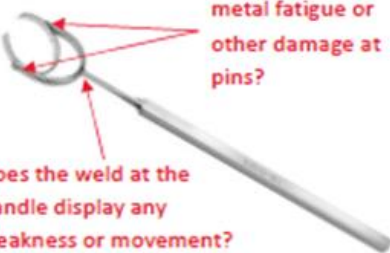
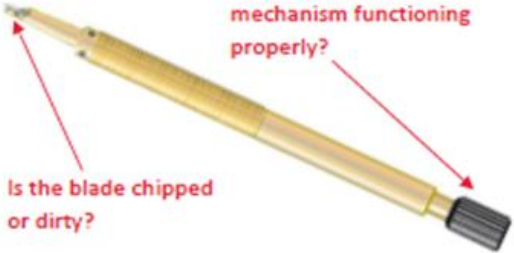


Check for: misalignment, cracks, corrosion, loose screws or other damage.

If a problem is observed, label the instrument and set aside for evaluation and repair.



- ✓ Sharp instruments should be tested for sharpness
- ✓ Hinged instruments should be checked for smooth function
 - ✓ Forceps should be inspected for tip misalignment
- ✓ Items with channels/lumens should be inspected for obstructions

<p>Wire Speculums</p> <p>Are the blades aligned?</p> <p>Are there signs of metal fatigue at weld?</p> <p>Is the wire spring weak?</p> 	<p>Adjustable Speculums</p> <p>Are the blades aligned?</p> <p>Is the adjustable mechanism functional? <i>*Apply light pressure on blades when opening/closing to simulate weight of eyelid*</i></p> <p>Are there signs of metal fatigue at screws or weld?</p> <p>Is there staining/rust on threaded component?</p> 	<p>Calipers</p> <p>Is the adjustable mechanism functional?</p> <p>Is there rust, pitting, or metal fatigue at screw or hinge?</p> 	<p>Cannulas</p> <p>Is there any damage at the tip?</p> <p>Is the cannula bent or damaged (not up to spec)? <i>*Compare against catalog or website*</i></p> <p>Is the cannula clogged or blocked? <i>*Test by pushing air through using a syringe*</i></p> <p>Are there any cracks or damage at the base of the lumen?</p> 	
<p>Forceps</p> <p>TIPS: Are tips aligned to meet perfectly?</p> <p>Are tips/teeth bent, cracked, chipped or missing?</p> <p>Are teeth crossing properly? (if applicable) <i>**Should not snag or click when opening/closing**</i></p> <p>Is shaft angled/curved properly?</p> <p>Are there cracks or rust on handle?</p> 		<p>Choppers/Manipulators</p> <p>Is the tip bent, cracked or missing?</p> <p>Is there any damage or rust on handle?</p> <p>Is shaft angled properly? <i>*Compare against catalog or website*</i></p> 		<p>Knife Handles</p> <p>Is there any damage or rust on handle?</p> <p>Does collet easily screw in?</p> 
<p>Spring-handled Needle Holders</p> <p>Is locking mechanism functioning properly?</p> <p>Do tips blades/tips meet and align?</p> <p>Is box lock intact?</p> <p>Is there rust, pitting, corrosion under blades at fulcrum?</p> <p>Does the spring compress evenly on both sides?</p> 		<p>Spring-handled Scissors</p> <p>Are there any burrs or other damage on blades?</p> <p>Is there rust, pitting, corrosion under blades at fulcrum?</p> <p>Is box lock intact?</p> <p>Are scissors sharp? <i>*Test with scissors testing material*</i></p> <p>Does the spring compress evenly on both sides?</p> 		<p>Ring-handled Scissors</p> <p>Are there any burrs or other damage on blades?</p> <p>Is there rust, pitting, corrosion under blades at fulcrum?</p> <p>Are scissors sharp? <i>*Test with scissors testing material*</i></p> 

Mosquito Forceps	Fixation Rings	Diamond Knives
<p>Is there any chipping or other damage on blades?</p> <p>Is there rust, pitting, corrosion under blades at fulcrum?</p> <p>Is ratchet lock functioning properly? *Lock on the first ratchet & tap on flat surface to see if it stays closed*</p> 	<p>Are there sign of metal fatigue or other damage at pins?</p> <p>Does the weld at the handle display any weakness or movement?</p> 	<p>Is the open/close mechanism functioning properly?</p> <p>Is the blade chipped or dirty?</p> 
Phaco Handpiece		I/A Handpieces
<p>*BASIC VISUAL INSPECTION FOR OBVIOUS DEFECTS*</p> <p>Is there any damage or visible obstruction at tips/ports?</p> <p>Is there any damage or cuts on the cable? *Be sure to check ends/ connection points carefully*</p> <p>Is the cap in place? Is there fraying on the cable holding the cap?</p> <p>When cap is removed, is there any rust in port? Are any prongs bent?</p> 		<p>*BASIC VISUAL INSPECTION FOR OBVIOUS DEFECTS*</p> <p>Is the tip damaged or bent?</p> <p>Is there any damage or cracks at base of lumen?</p> <p>Is the handpiece blocked or clogged? *Test by using a syringe full of air*</p> <p>Is there any damage at the connection port?</p> <p>Monarch IOL Loader</p> <p>Does the plunger screw and unscrew without grinding or resistance?</p> 

Assembly & Packaging

Instruments should be assembled into sets according to AAMI standards.

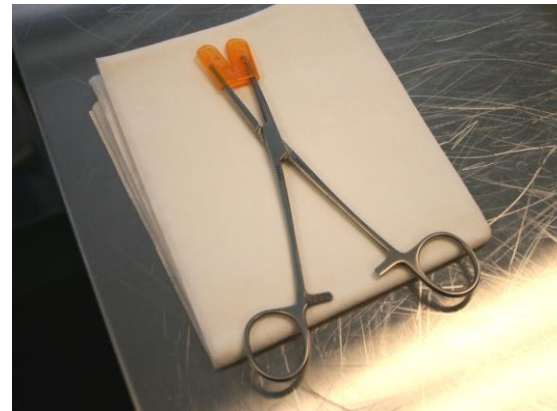
- Ring-handled instruments should be kept open.
- Curved jaws or tips should be pointed in the same direction (inward from sides of tray).
- Cupped or concave instruments should be positioned so as not to collect water.

Do not let delicate instrument tips touch other instruments or the sides of the tray. Be aware of tips that might contact the underside of the tray lid.

Storing

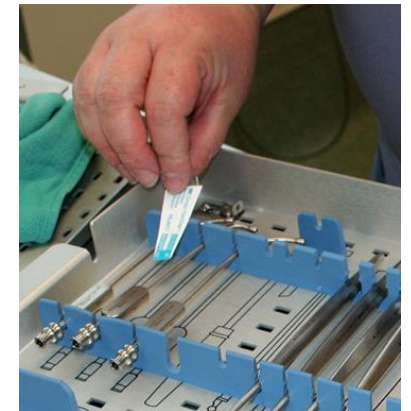
All instruments should be placed in properly sized trays with protective mats.

Clear vented tips are the current standard for tip protection required by the Joint Commission (if/when used by facility).



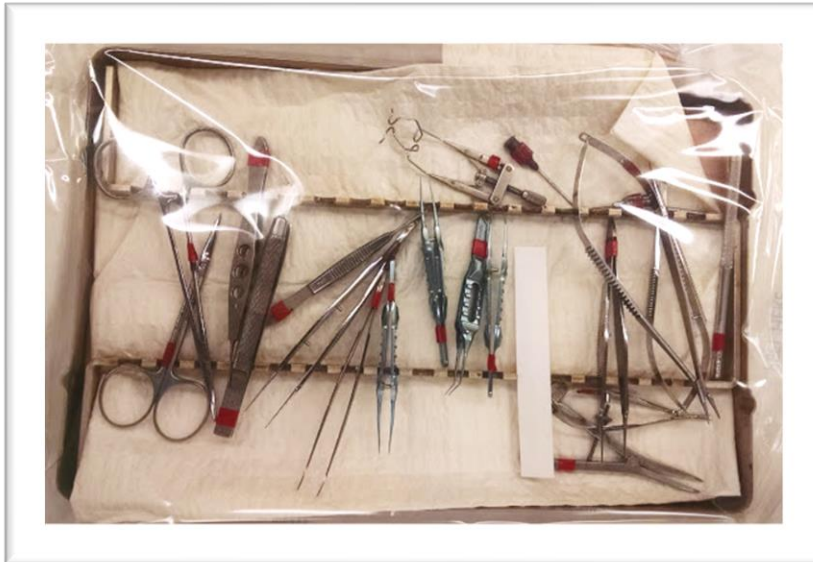
***Wrapping the tray prior to
autoclave sterilization
"Envelope" Wrap***

SteriGauge



Proper Placement of Instruments in Tray

BEFORE



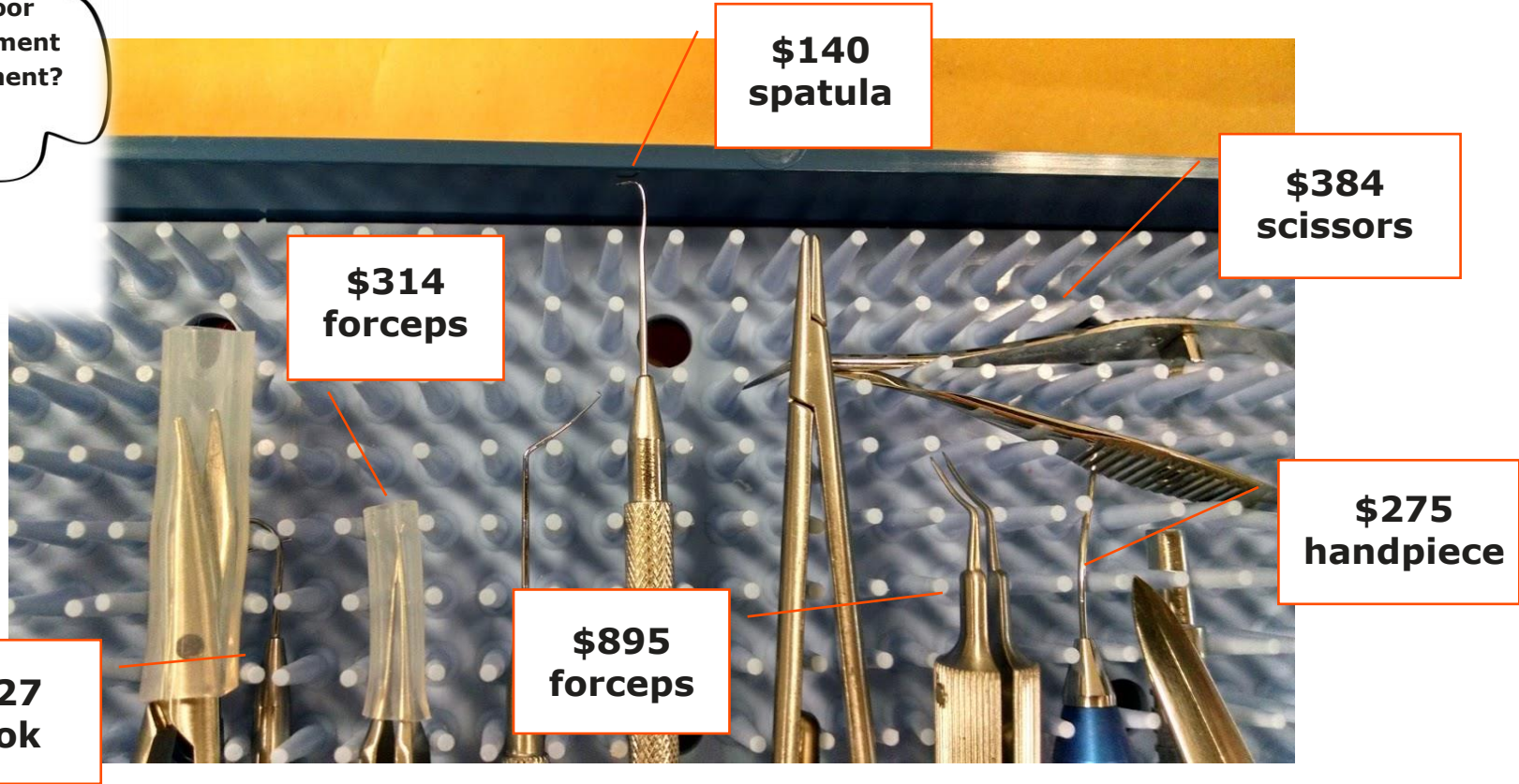
AFTER



But keep those calipers and ring-handled instruments OPEN!!!



What's the **cost** of poor instrument placement?



That's just the cost for replacement...
imagine how damaged instruments impact the
surgical procedure and potential complications!!!

Step 4 Sterilization



Sterilization

Sterilize instruments depending on manufacturer's guidelines or sterilizer parameters. (Pre-vac, gravity displacement, etc.)



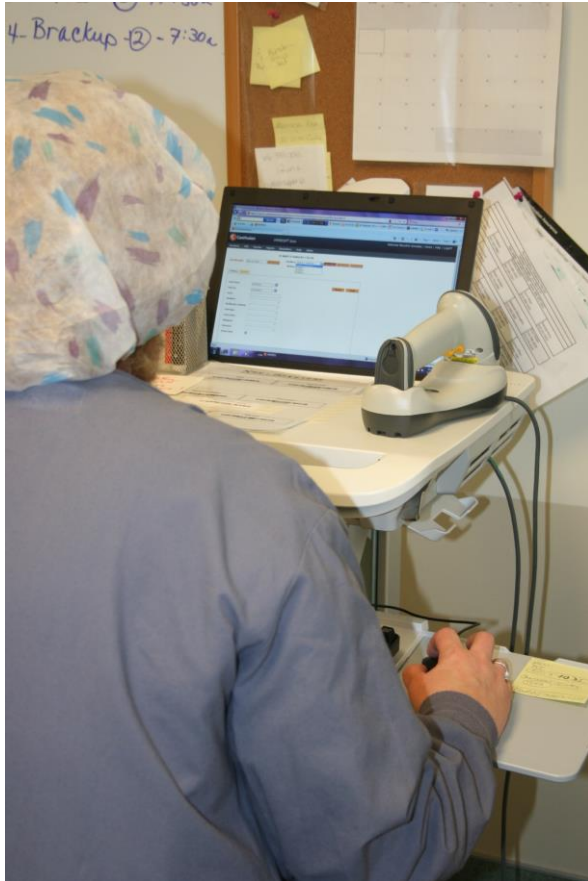
Processing Tips

- ✓ Inspect instruments under microscope or magnifier.
- ✓ Put fewer instruments in trays to allow better exposure.
- ✓ Peel pouch instruments that are not used every case.
- ✓ Own enough trays to allow time for proper processing to keep up with caseload.
- ✓ Create a task force to frequently evaluate and identify breaches in good instrument care.
- ✓ **AVOID IUSS!!!**

Step 5 Cooperation



Tracking & Personal Accountability



If you
SEE
something
that
doesn't
look right,

SAY
something!



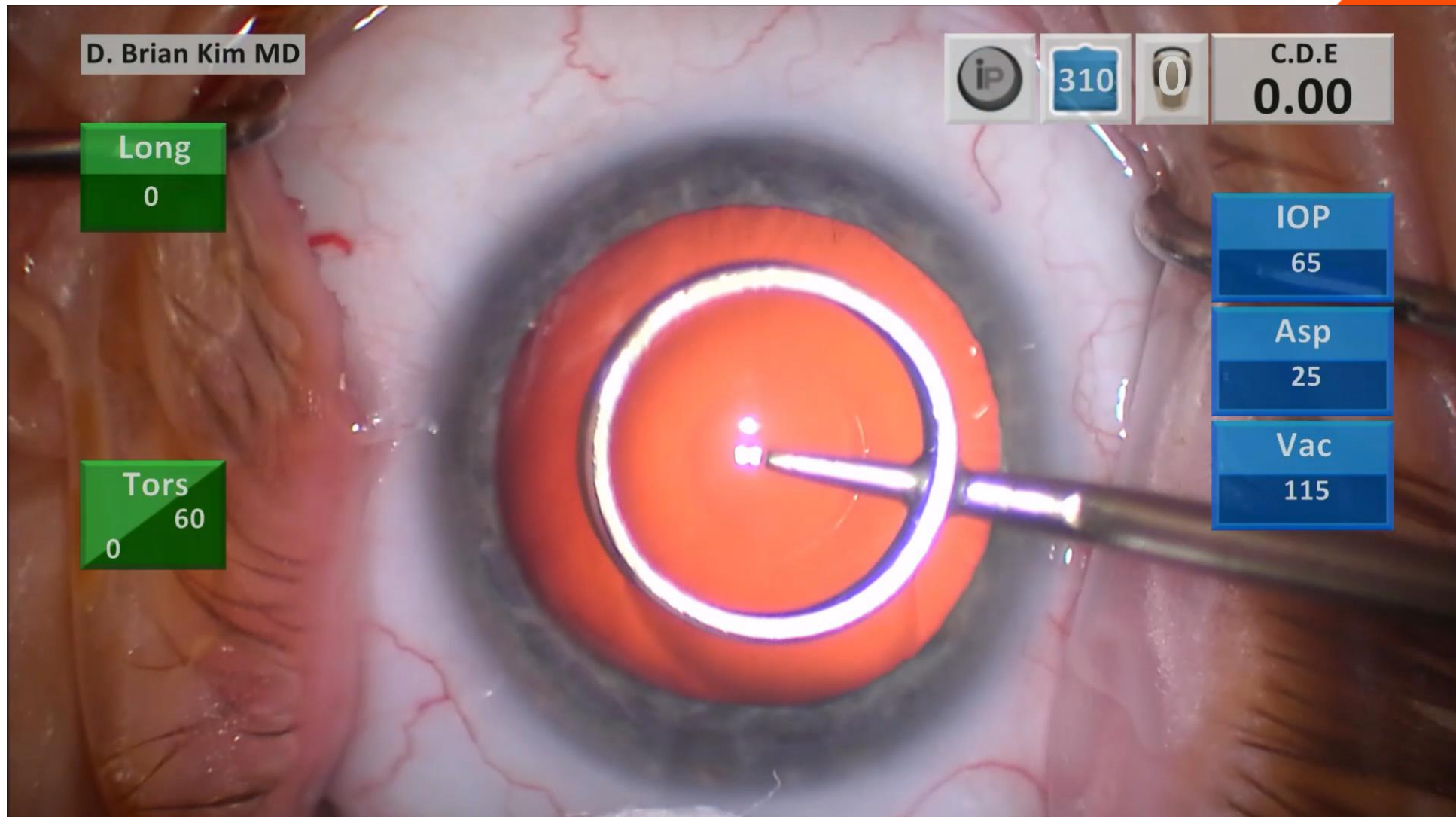
A tracking system is required for audit/inspection purposes as well as best practices for patient care.





It takes a TEAM!

Cataract Surgery Today



Q&A

Thank you!

Tatyana Rybikov | Territory Manager - N California & Hawaii
tatyana.rybikov@corza.com | 916-384-8554

