**STERILIZATION and DISINFECTION**

* **Don’t touch charts and objects with dirty gloves.**
* **Don’t leave operatories with dirty gloves**.
* All instruments and equipment **that goes in the mouth and/or penetrates bone or tissue must be disinfected, sterilized or thrown away** between patients. If you have a piece of equipment that can’t be heat sterilized, then follow the manufacturer’s recommendation for cleaning. If you have an instrument that doesn’t go in the mouth (like a ring for a Rinn instrument), regular cleaning and/or disinfecting is sufficient.
* People are not dropping dead from bib chain infections. Yes, b**ib chains** are a potential source of cross contamination, so they need to be cleaned and disinfected.
* Set up **systems for sterilization** to make sure everything gets sterilized the way it’s supposed to. There should never be a question as to whether an instrument is dirty or clean; nothing clean should be on the dirty side, nothing dirty on the clean side.
* Contaminated instruments should be handled carefully to avoid accidental injury. Even though they’re a pain, you should always wear those annoying **thick, puncture-resistant gloves** when you handle instruments. They really do help prevent sticks. Exam gloves are not sufficient to prevent sticks during processing…you need the annoying thick ones.
* Remember, when you’re taking dirty instruments to the back, make sure you carry them on a **closed tray, in a closed container, or in a cassette** NOT in your hand.
* Never reach into a **sink full of instruments** or an ultrasonic. When removing them from an ultrasonic cleaner or a soaking solution, use a basket or use forceps.
* Make sure you **change your ultrasonic** solution daily. It gets very gunky and yucky, so you need to change it because it’s less effective.
* Also, make sure you **test your ultrasonic** according to manufacturer’s recommendations to make sure they’re effective, which is usually a monthly foil test. Ultrasonics work by shooting ultrasonic sound waves through a solution which creates bubbles that knocks nasty stuff off your instruments. The more cavitation, the better. Your goal is for it to cavitate evenly to make sure stuff is removed off the instruments evenly. A **foil test** is where you suspend pieces of foil in the ultrasonic tank for about 20 seconds and then take it out and look at it…it should be uniformly pitted all over. If not, your ultrasonic may not be cavitating properly and may not clean your instruments as well.
* Before sterilizing**, all debris should be removed** from the instruments. Instruments can be hand-scrubbed using a long-handled brush, but the best method to clean instruments is by automatic means such as ultrasonic cleaners or washer-disinfectors, (which are basically expensive, dental-specific dishwashers).
* Instruments should be **wrapped or bagged**, and a chemical indicator should be placed on the inside and outside of the package to ensure that the instruments reach the correct heat. Our multi-parameter bags that have dots that change color on the inside and outside of the pack so you can see it are sufficient.
* Make sure you **load your sterilizer** properly according to the manufacturer’s recommendations. Some of them have racks that correctly position packs and cassettes.
* Allow **instruments to cool in the sterilizer before handling.** If you have a hot, wet pack and you touch it with dirty hands or place it on a dirty surface, you can actually wick bacteria into the pack. Then, when it dries and seals itself off, you can actually trap bacteria in the pack, which can grow on the instruments. Also, wet packs can tear or instruments can poke through which also compromises the sterility of the packs.
* Once processed, instruments should remain wrapped and **stored in closed or covered cabinets** in order to maintain sterility and to avoid cross contamination from aerosol and spatter. Don’t store them under sinks where they might become wet. So long as the packs are intact and dry, the instruments should remain sterile indefinitely. Date the packets and note which autoclave it came from (if you have more than one) in case you have a sterilizer failure and you have to re-sterilize anything.
* Never **reuse autoclave bags and pouches**. Always seal them with autoclavable tape, not staples.
* Make sure you use the **right type of bags and pouches for your sterilizer.** Certain types of plastic wraps can melt, and plastic peel pouches can separate in a dry heat sterilizer.
* If you use **cassettes, you should use an FDA approved wrap**, not a cloth wrap like surgical towels, because they’re porous and won’t stay sterile when stored until used.
* **Instruments can be sterilized using dry heat sterilizers, chemi-claves or steam autoclaves**. Although chemi-claves are generally best on the edges of instruments, there are concerns about the chemicals used to sterilize.
* In general, steam sterilization is your best option for dentistry. There are short cycle autoclaves which tend to wear less on your equipment, you don’t have to worry about venting them or wearing any hazard protective gear like you do with chemi-claves, and in the event of a sterilizer failure, disease transmission from these improperly sterilized instruments is very unlikely. **Steam sterilization raises the temperature so significantly that, even if the spore test fails, it is still likely that all the pathogens that we worry about have been killed because most viruses are very susceptible to heat.**
* All sterilizers should be **tested at least weekly** using biological spore tests, always use the control, and all results should be recorded and the records retained.

**CONTAMINATION IN DENTAL OFFICES**

* We don’t work in a sterile environment; our goal is to prevent cross contamination.
* For routine dental procedures, **handwashing** with plain soap (or antimicrobial soap) and water, and/or hand sanitizers are all sufficient. Handwashing removes pathogens from hands; hand sanitizers kill pathogens. Sanitizers are very effective against bacteria and *some* viruses (For example, hand sanitizers and not effective against the norovirus, which causes stomach bugs).
	+ Artificial nails are not a good idea for those who work in the back; ideally, fingernails should be fairly short, well filed, and natural. Fake nails, especially when chipped, can harbor bacteria and fungi and have been linked to outbreaks of disease in medical environments.

**General Office Infection Control**

* **Keep stuff off your counters**. Patients perceive a cluttered counter as a dirty counter. Also, it’s difficult to properly disinfect a counter that’s covered in brochures, samples, etc.
* **All instruments must be bagged**, including individual instruments. Even if they’re in drawers or cabinets, they can be contaminated by airborne aerosol if you open the drawer or cabinet, even if you don’t touch them. (FYI: Aerosolized particles can remain suspended in air for up to eight hours).
* **Environmental surfaces in the operatories must also be kept clean** in order to avoid transmission of disease. Barriers should be used whenever possible to avoid contamination of surfaces; if not possible, surfaces must be cleaned and disinfected using the correct disinfectant.
* Make sure you are using the **correct disinfectant for the correct surface**. Make sure any disinfectants you use on **clinical contact surfaces are tuberculocidal**; you can use other, non- tuberculocidal for sinks, walls, counters away from the treatment area.
* REMEMBER, if you use barriers and the **barriers are intact** at the end of the procedure, you just have to remove and replace the barrier, you don’t have to then clean and disinfect the surface.
* **Wipes** are fine if you don’t like the sprays. The proper procedure for a wipe is wipe-discard that wipe and get a new wipe-wipe. You clean to remove dirt and bioburden, you then throw that contaminated wipe away, and you wipe the cleaned surface to disinfect it.
* To make sure wipes are used effectively, follow these guidelines.
	+ Make sure you keep the **container closed** between uses to ensure that the wipes are as wet as possible.
	+ Know how much **surface area** each wipe is designed to clean. (After a certain point, you’ll just end up smearing stuff around instead of removing it.)
	+ Make sure you leave it for the **correct amount of time**. (That’s why alcohol on its own isn’t a good cleaner/disinfectant because it evaporates quickly and doesn’t allow enough contact time.)

* A lot of folks prefer wipes because there’s not as much chemical exposure. If the disinfectant you are using is giving you fits, try a different disinfectant. Lots of them are less scented, maybe using wipes instead of spray will be less offensive, just check it out.
* You don’t want to store **disinfectant poured over gauze**. The problem is that the cotton in the gauze can actually interfere with the effectiveness of the disinfectant. It can screw up the concentration by absorbing uneven amounts of disinfectant. Also, the cotton fibers can break down in the disinfectant and interfere with the effectiveness. The best way to do it if you’re going to use gauze is to spray or pour disinfectant over the gauze as you use it.
* **Do not use carpeting in operatories or the sterilization area**. It is much more difficult, and less predictable, to clean than hard flooring.
* All **impressions and items to be sent to the lab should be cleaned**, disinfected, and rinsed however you and the lab decide is the best way to do it. Some labs don’t like for you to disinfect and then let them sit because it can warp–just make sure you and the lab are on the same page
* Also, always **rinse any appliances that come back from the lab to avoid any latex** issues. Many labs use latex gloves and there are latex proteins all over the boxes the cases are in, so if you have a patient with latex issues you can have a serious issue. Rinse them off, put them in a new plastic bag and keep them away from the rest of the cases.
* **Dental office waterlines** can also be a potential source of infection. I want to remind you that the CDC has stated that all water that goes into patients’ mouths, from handpieces, ultrasonic scalers, whatever, MUST be at least drinking water quality, which is 500 CFU/ml H2O. If your waterlines have higher levels of bacteria and you have a disease outbreak, you could have a HUGE liability issue.
* Intravenous fluids and other **single use medications** should not be used on more than one patient. Single use vials don’t have protection to prevent contamination, so if you reuse the medication, the seal has already been broken and contamination can result. Patients have gotten serious staph infections as a result and studies have shown that viruses such as Hepatitis B, C, and HIV can survive in a vial of anesthetic, for example, for several hours and could be a potential source of disease transmission.
	+ (Example: in an outpatient facility in Las Vegas, they were changing the needle on each patient, but using the same tubing. They were also drawing doses for multi patients from single use vials. There was a huge outbreak of hepatitis C. Disposable devices should never be reused.)