



MAKER'S BENCH

2020, The Year of Covid-19

by John Waddle

What a weird year it has been!

Every weekday morning, I check the latest counts of how many cases have been reported worldwide, how many cases in the U.S. How many deaths worldwide, and how many deaths in the U.S. How many cases in Minnesota, and how many deaths in Minnesota. The numbers grow every day.

The virus, SARS-CoV-2, is just one virus that can be dangerous to your health, but it is the one most talked about today because it is responsible for killing people all over the world every day. It is more commonly called Covid-19. Like other viruses, it can be transmitted from human to human through the air when we breathe, cough, sneeze, talk or sing. It can also be transmitted if we touch a surface that has been contaminated, and then we touch our nose, mouth or eyes. The Covid-19 virus can last on a surface for between three days and nine days. People can be infected and not know it or have symptoms.

The best way to avoid getting the virus is to stay home. Working from home has become normal for many people. Gathering indoors in groups is risky, especially indoors. Wear a mask, wash your hands, and keep your distance. If indoors, try to have some ventilation. If you are a string teacher, and a student hands you their instrument, and asks you to tune it for them, or play it for them, you could be exposing not only yourself, but possibly your student, to the virus.

One strategy is to minimize the amount of virus that infects the surface of the instrument or bow. If masks are worn and hands are washed before handling the instrument or bow, this will certainly help, but the virus could be on the instrument from something that happened three days ago, so even then you could still be exposed.

Possible instrument cleaners

The virus has been described as an “enveloped” virus because it has a lipid coating instead of a protein shell. Because of this, soaps or mild detergents can be effective, but in order to break down that coating, they need some time to work. How much time depends on what the active ingredients are in the cleaner, and at what concentration.

Alcohol is effective and works fast, but even one small drop of alcohol on the varnish can completely dissolve the varnish in that spot, and if you notice and try to wipe it off, you can really make a mess very quickly. Instruments have varnish on them, and bows may have been polished with varnish.

Peroxide can be effective against the virus, but it's not clear how long it takes to do the job. I tried some on a couple of different instruments and it did seem to be an effective cleaner, and at least on the two instruments I tested, it didn't seem to remove varnish, but I would still suggest caution.

I tried several different products that are advertised as wipes for sanitizing hands and surfaces. The active ingredients tend to be Ammonium Chlorides. These seemed safe, though I felt the need to rinse the instruments with water after using them. Again,

I would suggest caution. Work on only a small area at a time and watch what is happening.

I have found some of the citrus based cleaners to be helpful in cleaning instruments and bows. Some of these are too strong and strip varnish off, so I'm very careful. The citrus cleaner can leave a slightly oily film, so I follow with a soapy cleaner, next with water. Once I am satisfied that I have the instrument clean, I give it a careful rinse with clean water to get any soapy residue off.

The Environmental Protection Agency (EPA) has a list of disinfectants for use against SARS-CoV-2 at <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2-covid-19>. If you go to the site, click on “search by EPA registration Number,” and that will take you to the list. This list is helpful because it lists almost 500 products with their active ingredients, product name, and company name.

How to disinfect an instrument

The challenge with disinfecting a violin, viola, cello, or bow, is in destroying the virus without also damaging the varnish on the instrument or the bow. Violin varnish is delicate, and vulnerable to most solvents and cleaners. Commercially available instrument cleaners and polishes don't really do the job. If they had enough actual cleaner in them to be effective, they would be dangerous to use. Alcohol would be effective against the virus, but will very quickly strip the varnish right off the instrument. Commercial instrument cleaners and polishes contain waxes and oils that don't really clean and end up building up a layer on top of the varnish that can be difficult to remove later on.

Areas of concern are the fingerboard, pegs, fine tuners, chin rest, end pin and screw, handle of the bow, frog and button. The neck, upper edges and rib will also be touched when playing. Players hold violins and violas right in front of their faces. Cellos and basses are right under their faces. Their breath falls onto and into the instruments and onto the bows.

Use caution!

It is most important when cleaning, sanitizing, or disinfecting an instrument or bow, to use caution at each step to avoid damage. Most musicians, teachers included, have never had any training in how to clean an instrument or bow. It's certainly not something I would recommend that beginners or students do themselves!

I use white cotton cloth. Old worn out white cotton bed sheets are my favorite, but I'll sometimes use an old worn out white cotton T-shirt. These are items that many people would throw away or find a way to recycle. I tear the cloth into small four inch by four-inch squares, and then fold the square into a smaller pad, and use one corner of the pad.

I usually dip the corner of the pad in water, and then I put a drop of the cleaner on the corner of the pad and gently rub a small area of the object I want to clean and then look at the pad where

I've used it. If I'm cleaning a non-varnished surface like a peg or a chin rest or the frog of the bow, I expect the cloth to look gray to black. This is normal. If I am cleaning surface that has varnish on it, I expect to see gray, brown or black on the cloth. If I see even a hint of the color of the varnish, I stop and try something different because that tells me that whatever is in that cleaner might be taking off the varnish.

Paper towel can be used, but I prefer cloth because I feel like it is softer and less abrasive to the instrument. It is important to clean a small area at a time and keep checking the cloth to be sure you are only taking off what you want to. As soon as the cloth is soiled, it is discarded and a new one prepared. I don't try to wash the soiled cloths and use them again. I find it awkward to wear gloves when working on instruments, so I'm careful to wash my hands after I clean an instrument.

One cleaner does NOT clean all!

It's important to realize that what works on one instrument or bow, may not work on another, because luthiers and archetiers all have their own formulas, procedures and techniques for varnishing.

Be careful!

To do a good job of carefully cleaning a whole instrument takes time and care. I usually recommend that it is done by a professional luthier. It's not something to do in a hurry.

One problem is that after a good cleaning, if the cleaning is not followed by polishing, the instrument or bow will look dull. This is why every instrument and bow is polished, both when it is newly made, and periodically after routine cleanings. The polish brings back the luster and helps to protect the instrument. Polishing has its own issues. To clean an instrument or bow is relatively simple compared to polishing one. This takes years of practice to get right.

UV light — effective, but dangerous?

Another approach that is being discussed is ultra-violet (UV) Light. Luthiers commonly use UV light boxes for darkening (tanning) wood, and for curing varnish.

The problem with this is that there are several types of UV light, and the type that works best for curing varnish might not be the best for destroying virus. The three most commonly used UV light bulbs are UV-A, UV-B, and UV-C.

UV-A bulbs are the typical "black light" bulbs. These are often used in varnish cabinets. These are the most harmless, but we are

always cautioned not to look directly at them because they can be harmful to the eyes. These lights might be effective against virus, but it might take overnight to work.

UV-B lights are considered carcinogenic, so need to be used cautiously. These are sold as "Lizard Lights." Some luthiers might use these in a varnish cabinet. These might be effective against viruses, but might still take a couple of hours.

UV-C lights are "Germicidal" and will destroy viruses in seconds. But it is also very dangerous. It is highly carcinogenic and can cause cataracts. Some hospitals are using these in special cabinets to sanitize masks quickly so they can use the masks safely again.

Wait between instrument uses

In my shop, I assume that everyone who brings an instrument or bow to the shop might be infected, so I put a tag on each item with the date that it came in, wash my hands after handling it, and wait three days before touching it again. After three days, I clean it, and only then do I feel comfortable working on it. Even then, there is risk because we don't know for sure if three days is enough time. Some sources say it's three days to 10 days. If a customer takes one or more instruments or bows out "on trial" and then brings them back to the shop, I put a tag on each item with the date, wash my hands, and wait three days to touch it again. I clean them before they leave the shop again.

If possible: avoid sharing instruments, and use good hygiene

As musicians, the safest way to avoid the virus is not to share instruments or bows. If students have their own instruments, they should be fairly safe if they don't let other people handle them or play them. If the student has an instrument at home and can bring it to school, that will mean fewer people handling. If instruments are being used by more than one person, if they can be quarantined for at least three days in between use, that would be best. If that's not possible, at least have the person wash their hands before playing the instrument. This is just good hygiene, and better for the instrument anyway.

John R. Waddle is a violin maker, dealer, and restorer whose shop is in St. Paul, Minnesota. He is a 1981 graduate of The Violin Making School of America in Salt Lake City, Utah, and has had his own shop in St. Paul since 1986. John is a member of both The American Federation of Violin and Bow Makers, and the Violin Society of America. †