

CLEAN WATER FOR CAROLINA KIDS

PROGRAM INSTRUCTIONS FOR CENTER ADMINISTRATORS

We have a full video series for child care centers on how to test for lead and eliminate exposure. This document provides the same information as the videos, but in written form:

1. How to Sample for Lead in Your Child Care Center's Water
2. How to Send Your Water Samples to the Lab
3. What Happens When Your Samples Get to the Lab
4. What Your Water Test Results Mean
5. How to Choose the Right Water Filter
6. How to Install and Maintain a Water Filter
7. How to Replace Your Faucet.

If you prefer to watch our videos, click [here](#) or search "NC Child Clean Drinking Water playlist" on YouTube. You can also get help from the [North Carolina Childhood Lead Poisoning Prevention Program](#).

Overview of Lead Hazards in Child Care Centers

Lead is possibly the most notorious toxic chemical in history, and it's still in kids' environments. Lead is toxic to the brain and the nervous system even at very low levels of exposure. Infants and young children are especially sensitive to chemicals like lead in their environments, and lead exposure in children is associated with learning disabilities, behavioral issues, and lower IQs. These effects can be permanent.

If you run a child care center or send your kids to one, regardless of the building's age, it's really important to make sure that the building and the drinking water are free from lead. At child care centers, potential sources of lead exposure include old paint, drinking and cooking water, and imported toys and other manufactured products. This document focuses on lead in drinking and cooking water.

An Overview of Our Steps to Identify and Eliminate Exposure to Lead in Drinking and Cooking Water

The first step is to get your water tested to find out if it contains lead. If you do find lead, there are straightforward, cost-effective steps to eliminate exposure. You can designate "one clean tap," use water filters, and replace old plumbing fixtures. Boiling water does NOT remove lead or prevent lead exposures. Taking recommended steps to get lead out of your drinking water can ensure that your water lead levels get down to almost zero.

At the end of this document, we also describe how to check your pipes to identify whether they are lead, copper, or galvanized steel so you can report that to us and we can associate the type of pipes with the sampling results. In addition, if your pipes are lead or copper, that may help prioritize your center for service line replacement grant funds in the future.

CLEAN WATER FOR CAROLINA KIDS PROGRAM INSTRUCTIONS

FOR CENTER ADMINISTRATORS TO COLLECT AND SHIP WATER SAMPLES FROM YOUR CENTER

1. How to Sample for Lead in Your Child Care Center's Water

Because you have enrolled in the online portal, you are receiving a water sampling test kit. If you have more than 18 taps used for drinking or cooking, you may receive more than one box. Each box will contain its own Chain of Custody document.

Step 1: Set a Date to Sample

Your center or school should be in normal operations (not temporarily closed due to COVID-19). It is acceptable if you are open with reduced operations.

Plan to sample on a Monday morning. You need to sample when nobody has used water for eight hours (a “first-draw” sample). Let teachers and anyone else who comes in early know when you plan to sample and set an alarm to get there early. If you come in to do the sampling and somebody has used water already, simply postpone your sampling until the next Monday. **DO NOT flush water in the building prior to testing. You need to complete all sampling before ANY water is used in the building, so make sure you have enough time.**

Step 2: Make Sure the Sample Kit Is Complete

Open and check your sample box to confirm that you have:

- A water bottle for each drinking and cooking tap, in a large plastic zip bag
- A return mailing label with a zip bag
- A chain of custody document showing your sample locations.

Remember, you are using this box to return samples, so be careful with your box and hold onto your bubble wrap for your return shipment.

Check your chain of custody document to confirm the sample IDs are filled in correctly and coordinated with the bottles provided. For example, if the chain-of-custody says “kitchen sink,” a row of the chain of custody document should have a number label that matched with the bottle.

Step 3: Collect Your Water Samples

You will sample in order of the rows on the chain of custody document. Start with the bottle that matches the first row of your chain of custody document. Do not wash your hands before you start - we need “first-draw” water samples. You can use hand sanitizer if you would like.

Open the bottle carefully and pull the cap up; do not touch inside the cap or the bottle itself. *(Note that these bottles differ slightly from the video on our website and your notification email).*

Turn the water on to a normal speed and fill the bottle, turning the water down as it gets to the top, stopping before it overflows. **Close the bottle tightly.**

Repeat these steps for each sample, going in order of the chain of custody document. **For water fountains**, be careful, as you need to angle the bottle to try to get all of the water, and it may be different than you're expecting. If possible, the week before sampling, check the water fountain and see where the water typically hits and put a little mark there. If you don't get it in right away, that's okay: just keep the bottle as full as you can. Don't pour it out and try again.

Avoid Common Mistakes

- Do NOT allow someone in the building to start using water before you complete all sampling.
- Do not flush or use any water at your Center prior to water sampling for at least 8 hours. Maintain normal water usage in the week up to sampling.
- Do NOT remove any aerators on your tap prior to collecting these samples.
- Do NOT close the shutoff valves on the pipes beneath the sinks.

Step 4: Fill out the Chain of Custody Document

Fill in the date and the time on the chain of custody document for each sample and at the bottom. You've now completed your water sample collection. Next, how to ship your samples to the lab.



2. How to Ship Your Water Samples to the Lab

Step 1: Repack the Test Kit Box

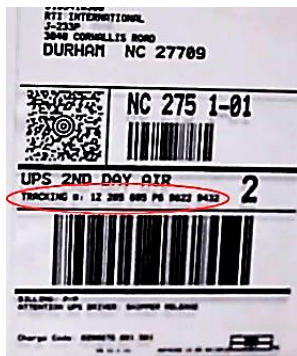
You will re-use the shipping box and two zipper bags that your test kit came in. Put the filled sample bottles back in the larger bag. Check to make sure each sample bottle is closed tightly first. Put six bottles in a row, then start another row, up to 18 bottles per bag. Zip the bag; if the bag is not full, fold it over to zip it up. Seal it well. Place the bag in the box.



Put the chain of custody document in the smaller bag and seal it, so it doesn't get wet. Place this bag in the box as well.

Step 2: Apply the Return Mailing Label

Place the provided return UPS mailing label on the box, over the label from shipping the box to you. Close the box using strong shipping tape to thoroughly reseal the top flap before shipping.



Step 3: Schedule a UPS Pickup

There's no charge for you to ship these samples to the lab: the return mailing label is prepaid.

Schedule a pickup at UPS.com OR Call UPS at 1-800-742-5877 after 7am. If you schedule before 10am, UPS will come the same day. You do not need to drop off the package: if the website or phone system asks if you want help finding a UPS location where you can drop off your package, select No. You need to give UPS your phone number and the tracking number from the shipping label (see circled area at right). Write down the confirmation number.

Step 4: Take the Box Outside for Pickup

Place the box where you typically leave packages for UPS pickup. A location in the shade is ideal.

3. What Happens When Your Samples Get to the Lab

When we receive samples at the lab, we

- Log the samples into our system
- Check to make sure the samples are in good condition, no water has leaked out from the caps, and the sample IDs match what’s on the chain of custody document
- Measure the how much sediment is in the sample (turbidity) to see if we have to do any additional preparation before laboratory analysis
- Preserve the sample for up to six months by adding high purity nitric acid in a clean environment
- Let acidified samples sit at room temperature for at least 16 hours
- Check the sample pH to confirm stability
- Load the samples into the auto sampler for analysis.

Once analysis is completed, we’ll send your results via your online portal and a notification email or, if you don’t have email, by U.S. mail. With the results will be recommendations to improve your water quality based on the results.

4. What Your Water Test Results Mean

Your laboratory results will be provided along with recommendations based on the concentration of lead in each sample. We recommend different actions depending on which of these categories your results fall into as shown in **Figure 1**.

Figure 1. Illustration of Recommended Risk Mitigation Based on Test Results for Each Tap.



Lead concentration in drinking water (parts per billion or ppb)

- 0.1 ppb: Clean Water for Carolina Kids detection limit
- 1 ppb: American Association of Pediatrics recommended level
- 5 ppb: Proposed NC state action level
- 15 ppb: Current NC state action level

The recommendations are further detailed below by the concentration of lead found in each sample or tap.

Results at or above 15 ppb

If you have a sample that is at or exceeds this level, *place a “Do not use” sign and tape over the tap to ensure that no children or staff are using it.* The State or local Public Health Department will notify you and come visit your center to check the tap and re-sample it. Once the second sample is analyzed, the Health Department will let you know the result and help you identify the best way to get the lead out of that tap. Three likely low-cost recommendations are to:

- Contact a plumber and make sure you don't have a clog or an issue with the pipe.
- Potentially change your faucet fixture, which may contain elevated lead.
- Install and maintain a water filter that is certified to remove lead.

Results at or above 5 ppb

For samples at or above 5 ppb, we *strongly recommend* low-cost solutions to remove lead or eliminate exposure. These include:

- Stop using the tap and designate another tap without detectable lead for drinking and cooking purposes
- Install and maintain a water filter certified to remove lead
- Flush water in the morning

Results at or above 1 ppb

If your results are at or above 1 ppb, we *recommend* low-cost solutions to remove lead or avoid exposure. The American Academy of Pediatrics recommends that lead in water not exceed 1 ppb, since no level of lead is safe for children to be exposed to. Potential steps include:

- Stop using the tap and designate another tap without detectable lead for drinking and cooking purposes
- Install and maintain a water filter certified to remove lead
- Flush water in the morning

Results below detection (0.1 ppb)

If your any results are below our laboratory detection limit that may mean there is no lead in your water, or that there is a very low level (less than 0.1 ppb). In all cases, we recommend practicing “clean water habits” for all water, including:

- Use only cold water for drinking or cooking. Don't start using hot water, even if you're going to boil it.
- Flush water at all taps used for drinking or cooking water for several minutes after holidays or weekends, or other times when the child care center is not in use. This clears out standing water in the pipes with fresh water.
- Contact a plumber promptly if you have a clog or decreased flow at a tap.

Recommendations: Results above NC Action Level

- Health Department will call to schedule visit to re-sample
- DO NOT USE tap until further notice from health official
- Take steps to remove lead

Recommendations: Results below NC Action Level

- Take steps to remove lead (filtering and/or flushing)
OR
- Stop using the faucet and designate another tap for drinking and cooking water

Recommendations: Results below NC Action Level

- Take steps to remove lead (filtering and/or flushing)
OR
- Stop using the faucet and designate another tap for drinking and cooking water

Recommendations: Results below Detection Level

- Use only cold water
- Flush water after weekends
- Contact a plumber promptly for decreased flow problems
- If you have a filter, maintain it per manufacturer instructions

5. How to Choose the Right Water Filter

If you have tested and found lead in your water, you may think you need to replace all the plumbing, or rush to buy a stockpile of bottled water. Both of those steps would be expensive, and probably unnecessary. Water filters are an effective and low-cost way to get lead and other contaminants out of your water in most cases, as long as you maintain them properly. By contrast, bottled water is expensive and creates a large amount of recycling or trash. Therefore, we do NOT recommend bottled water as a permanent solution.

Check out our filter flyer [here](#) or on the [online portal](#).

There are a lot of water filter options out there, so finding the right filter for your tap can seem overwhelming. The most important thing is that **whatever filter you choose, it must be certified to remove lead specifically**. How do you know? The filter will have an “NSF” seal on it and the filter package will specifically say that it is capable of removing lead. **If it’s not NSF-certified, don’t buy it.**

Three basic types of certified filters are suitable for a child care center: faucet-mounted, countertop, and under-counter (or in-line) filters. Each of these types has its pros and cons, described below. In addition, if you have a water fountain containing lead, it should be replaced with an NSF-certified fountain if at all possible, but there are also options for filters that are compatible with water fountains.

You may notice that pitcher filters are missing from this list. Most pitcher filters cannot filter out lead, and even the very few that can are probably too small to meet the needs of a child care center. They are also the most expensive to maintain, as the filters have a very short service life. We do NOT recommend pitcher-style filters for a child care setting.

Faucet-Mount and Countertop Filters

Faucet-mount and countertop filters are designed to be the last bit of plumbing in contact with the water before you drink it. This makes them ideal for removing lead, because they work no matter where in the plumbing system the lead comes from. Faucet-mount and countertop filters are also affordable, with initial purchase costs of \$20–\$30 (faucet mounted) or \$100–\$500 (countertop) and maintenance costs (for replacement filters) of 10–15 cents per gallon. However, these filter types will NOT work if you have a pull-down nozzle on your faucet. Examples (ordered by cost) are shown below.

Under-Counter Filters (also called In-Line Filters)

Under counter filters tend to be more expensive up-front (\$50–\$500) but less expensive to maintain (under 10 cents per gallon). They work with any type of faucet, but they also will NOT remove lead that’s coming from the faucet itself. Many plumbing fixtures and faucets made before 2014 still contain significant amounts of lead, so if you choose an under-counter filter, we strongly recommend that you also put in a new faucet to ensure that you get rid of ALL potential sources of lead.

You can shop for water filters at your local hardware or home improvement store, or on Amazon. Click on our filter flyer for more information and example filters.

Doing the Math on Bottled Water

Bottled water costs about \$1.50/gallon. Maintaining a filter costs about \$0.10/gallon. A childcare center that serves 50 children uses about 4,700 gallons of drinking water a year. Choosing a filter instead of bottled water would save that center over \$6,000 a year: that would more than pay off the investment of buying a filter system several times over!

6. How to Install and Maintain a Water Filter

Now that you've picked the best water filter for your tap or fountain, it's time to install and maintain it!

Step 1. Install Your Filter

Your filter should come with written or visual instructions for installation. Just follow those instructions and you'll be on your way. Lots of filter makers also create videos that show you exactly how to install their filter on your sink. We've created a YouTube playlist of these videos. You can find those on our YouTube channel "NC Child" or by searching YouTube for your filter's exact name and model number.

It is also linked on our www.cleanwaterforcarolinakids.org portal.

You may need a plumber to install an under-counter (in-line) filter, unless you are handy with plumbing.

Step 2. Maintain Your Filter

NSF certified filters are a great way to keep your water as safe and clean as possible. But they only work properly if you maintain them properly!

- **Change the filter cartridge on time.** If you don't, filters remove less and less unsafe substances like lead from your water. Lead and bacteria can even build up in an old filter cartridge, and then be released into your water, making your water less safe. So, be sure to change your filter following your manufacturer's recommendations. Many filter devices include a light that tells you when the filter needs to be changed. How often you need to change the filter depends on how much water you're using. That means that your main kitchen faucet may need to be replaced sooner than a secondary sink. Check your filter instructions to understand exactly when it's time to replace your filter cartridge.
- **Use only the brand-name replacement cartridges made by your manufacturer.** Off-brand filter cartridges may not be certified to get the lead out. Cheaper replacement cartridges may seem like a good deal, but if they don't work properly, you're wasting your money.
- **Flush some water through a newly installed filter cartridge to get it working.** Each filter is different: some filter cartridges need as much as 10 gallons of water run through them before they're ready to use. So read the instructions that come with your filter carefully.
- **Use the filter exactly as instructed by the manufacturer.** That usually means filtering only COLD water. Hot water can damage many types of filters.

Maintain Your Filter Properly

- Change the filter on time
- Use only brand-name replacement filters
- Flush water through a new filter
- Use as instructed (e.g., cold water only)

7. How to Replace Your Faucet

Sinks, faucets, and plumbing fixtures sometimes contain significant amounts of lead. If your faucet is the source of the lead in your water, you have two options:

- **Install a faucet-mounted or counter-top filter.** Keep in mind these do NOT fit sinks that have a drop-down nozzle.
- **Replace the faucet itself with a new stainless steel faucet.**

Replacing a faucet may sound complicated, but it's actually pretty straightforward. If you are somewhat handy, you can replace a faucet yourself. If not, you may want to get a plumber or handyman to do the job. The faucet you choose will come with written instructions. Many manufacturers also make videos to help you. On our NC Child YouTube channel, we've created a video playlist of faucet replacement guides. If you don't find your brand of faucet on our playlist, search YouTube for the specific manufacturer brand name and model number of your new faucet. General instructions for replacing a faucet are:

Step 1. Assemble the Tools You'll Need

- A light for under the sink
- An adjustable wrench
- WD-40 or another penetration oil spray
- You may also need a wire brush and a hair dryer.

Step 2. Shut Off Your Water

You can find the on/off valves in the cabinet below the sink. Use your fingers to twist the hot water AND cold water supply lines to the "off" position. Sometimes those valves can get stuck or rusted, which can make them almost impossible to budge. If that happens to you, get a hair dryer and apply some heat to the valve. That should loosen the valve enough that you can close it by hand. Don't use tools like wrenches to try to close the valve: if you put too much twisting pressure on it, it could break. If you're still having trouble, shut off the building's main water valve before you go any further.

Step 3. Remove the Old Faucet

Removing the old faucet is often the trickiest part of the process. The space under the sink is often narrow and dark. You'll need a work light, and an adjustable wrench to loosen the nuts. The nuts can often be stuck or rusted. Try brushing away as much corrosion as possible with a wire brush. Then spray on some WD-40. That will help dissolve the corrosion and make the nuts easier to turn. If you're still having trouble loosening the nuts, it may be time to call a licensed professional.

Step 4. Install the New Faucet

Once the old faucet is out, installing the new faucet is the easy part. Follow the video or written instructions that come with your new faucet to learn how to install it. It includes flushing the water before use.

Once the new faucet is installed, you will want to have follow-up water testing done to be sure the new faucet has eliminated the lead from your water.

8. Checking for Lead Service Lines

If you want to check for lead service lines on your property, you'll need a metal tool, such as a screwdriver, and a magnet.

Step 1. Locate Where the Water Line Enters the Building

Typically, this is in the basement or lowest level. Look for the water meter and identify the inlet valve going into the building.

Step 2. Scratch off Rust or Corrosion on the Outside of the Pipe

Find a place to examine and use the metal tool to scrape off any rust or corrosion. If there is a covering around the pipe, uncover or unwrap the pipe first.

Step 3. See if the Magnet Sticks to the Pipe

If the **magnet sticks, the pipes must be galvanized steel**, which is typically a dull gray. A magnet will not stick to lead or copper pipes.

Step 4. If the Magnet Does Not Stick, Check the Color of the Pipe

If the magnet does not stick, the pipes must be lead or copper. You can distinguish between these by the color (both are typically shiny):

- ✓ Lead pipe is silver or gray
- ✓ Copper pipe is the color of a penny.

See <https://www.lslr-collaborative.org/identifying-service-line-material.html> for more information and sample photos.