

⚠ This protocol should not be used in place of vaccination, mask wearing, or other measures like isolation and quarantine

Vaccines, masks, and other NPIs are *proven* ways to prevent infection. This protocol *may* provide additional protection, but is not proven like these methods are and cannot substitute for them.

Overview

Some studies have suggested that saline solution containing chlorine compounds can prevent COVID infection¹ and reduce viral load² as well as symptom severity and progression to severe disease³. While this is still considered experimental and unproven, the low risk of the procedure means that it may be worthwhile for people at high risk of COVID--for example, people who cannot access booster vaccines, cannot consistently use masks, or who have health conditions that place them at high risk.

This protocol describes a way to make and use chlorinated saline solution similar to that used in previous studies. It is designed so that most people can make and use it at home.

Is there a way I can buy this, rather than make it?

This protocol is based on a product called Esteriflu, which was shown to prevent infection in a clinical trial. See the [section on commercial products for more information and ordering links](#).

Making your own solution

Materials required

- Either distilled water, **or** water that has been boiled for one minute and allowed to cool
- Measuring cup to measure 500 ml of water
- Water purification tabs containing Sodium dichloroisocyanurate (also known as NaDCC or sodium troclosene)
 - (Recommended) tabs used in testing: Aquatabs
(https://www.amazon.com/gp/product/B007W5D13O/ref=ppx_yo_dt_b_asin_title_o00_s00?ie=UTF8&psc=1)
 - Larger package:
<https://www.amazon.com/Aquatabs-Purification-Disinfection-Emergencies-Convient/dp/B07WTDSSXW>
 - Other NaDCC tabs should work, but make sure that NaDCC is the only listed active ingredient
- Free chlorine test strips:
 - Tested: <https://www.amazon.com/gp/product/B00DIJ5OP6>
 - These work OK, but can be hard to read in the 15-25 PPM range
- Nasal spray bottle
 - Tested/recommended: <https://www.amazon.com/gp/product/B00H0LBEGQ/>

Instructions for creating the solution


- Measure out 125 ml (approx 1/2 liquid cup) of distilled or boiled water
 - Do not use tap water without boiling. Tap water can contain chlorine-resistant organisms which are harmless when ingested, but which cause illness when sprayed into the nose

- If you boiled the water, allow it to return to room temperature before proceeding
- Dissolve 1.1 grams (approx. 1/4 teaspoon) of salt in the water
- Add water purification tabs:
 - If you are using the recommended tabs, add one tab to the water
 - If you are using a different type/brand, you will need to calculate the number of tabs needed to obtain 8.3 milligrams of sodium dichloroisocyanurate. The box should include both the weight of each tab, and the percent of sodium dichloroisocyanurate which can be used to calculate this figure.
- Allow tab to dissolve completely and stir the water thoroughly
- Measure the free chlorine concentration using test strips
 - If everything has gone correctly, the water should contain approximately 15-25 ppm free chlorine
- Load solution into the nasal sprayer
- Keep the solution and sprayer somewhere it will not be exposed to high heat or bright light (eg a cabinet, a refrigerator, a purse or a backpack)

These instructions make 125 ml of solution; if you want more you should double or triple the amount of water, salt, and water purification tabs.

Instructions for use

Currently, one study has shown that chlorine solution is effective for preventing COVID in medical workers¹. This study used a combination of nasal spraying and gargling three times per day. It is not clear how important each of these steps is; using only nasal spray or omitting treatment to days with no exposure likely provide some protection but possibly less than the full protocol. The instructions below described the protocol used in the Mexico city health worker study.

 The solution should be used within 12 hours of making it, since effectiveness will decrease after this time

- Spray 0.4 ml (4 pumps with the sprayer tested) in each nostril while inhaling deeply
 - Other sprayers may dispense a different amount of solution on each pump
- Gargle 10 milliliters (approximately ¾ tablespoon) of solution for 30 seconds, swish it around your mouth, and spit it out.
- Repeat this protocol 3x per day (evenly spaced)

An alternate version of the protocol is to follow these steps immediately before and after a potential exposure, rather than on a daily schedule. This approach likely provides some protection, though whether it is superior or inferior to use 3x/day is unclear.

How safe is this?

As a general rule you should approach this the same way that you would approach an experimental vaccine or treatment; currently data suggests it is unlikely to harm you, but there is a small chance new data may change this assessment. This protocol is intended for people who face high risks from COVID due to factors like occupation, health, and inability to use other protective measures such as vaccines and masks.

The biggest risks of using the solution are likely irritation of the nose and airway, which may trigger attacks in people with asthma or similar diseases like reactive airway diseases. Children should not use this solution due to their smaller and more sensitive airways. It is critical that you follow the protocol correctly and verify the chlorine concentration, as mistakes in preparing the solution could produce toxic levels of chlorine.

Several previous studies have used similar formulations of inhaled chlorine, and found that side effects were rare and not serious.^{1,2,4} At least two commercial products with similar formulations (Snoot⁵ and Esteriflu) are currently commercially available.

Inhaling large amounts of chlorine in various forms has been associated with damage to the lungs, and development of reactive airway disease⁶. However in these cases people inhaled very large doses of chlorine compounds and chlorine gas, which were much larger than the doses used in this protocol.

A study which chronically exposed rats to the form of chlorine (NaDCC) used in this protocol suggests no toxic effects at the doses used in this protocol⁷. The study found that NaDCC solution had no observable harmful effects in rats when inhaled at a concentration of 0.34 milligrams per kilogram of body weight per day for 90 days. Total exposure in this protocol is 0.16 mg per day, which corresponds to 0.004 mg/kg/day for a 90-pound/40.8 kg person. This is more than 80 times less than the safety limit, suggesting that toxicity is unlikely when prepared and used correctly

Chemical specifications of the solution

Redox potential: +750 mv to +950 mv

pH: 6.5-7.5

Free chlorine concentration: 15-25 ppm

Note: The free chlorine concentration will be approximately half the “available chlorine” specified on the tablet packaging. This is because when NaDCC is dissolved in water approximately half of the chlorine binds to cyanuric acid and gradually dissociates to maintain a constant free chlorine level.

Commercially available solutions

If you would rather not make your own solution, it may be possible to buy a commercial product with similar efficacy.

- In Mexico (and possibly other parts of Latin America), you can buy Esteriflu, which was the formulation used in clinical trials. Esteriflu is sold as [here](#) (with an electric nebulizer) and also [here](#) (in a spray bottle)

References

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