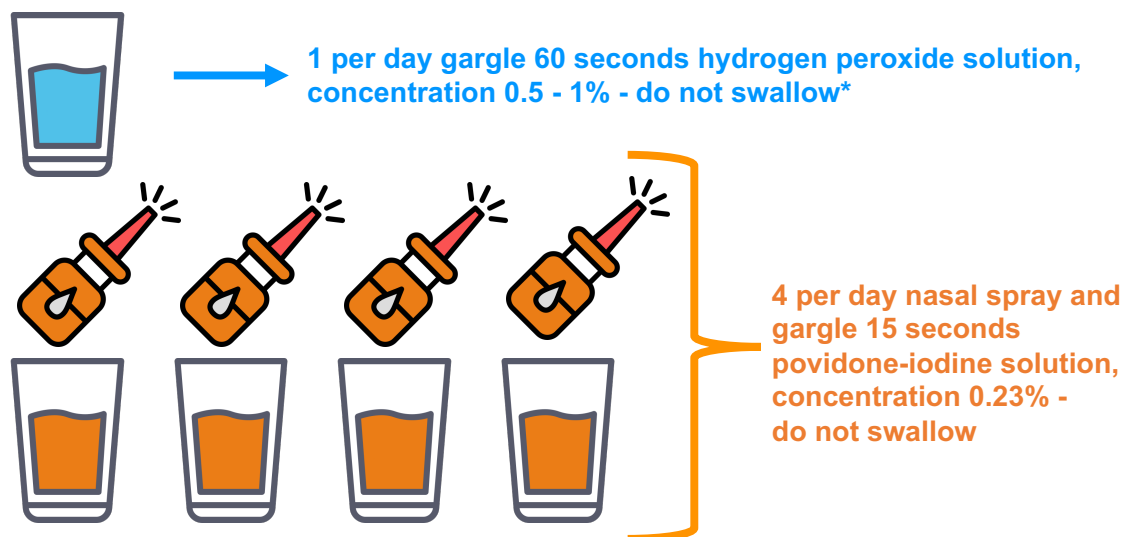


HOW TO FIGHT COVID-19

Dr. Alexander Andjaparidze, 13 March 2020

- We can improve our response to the COVID-19 pandemic by making better use of two widely available medicines.
- In addition to the protective behaviors¹ communicated by WHO against COVID-19, the below measures will strengthen prevention and better treat infected patients by reducing virus load:
 1. Once daily gargling for 60 seconds of hydrogen peroxide solution, concentration of 0.5 - 1% - do not swallow and after 10 minutes gargle again with warm water (not recommended for children under the age of 16)
 2. Four times a day nasal spray and gargling for 15 seconds of povidone-iodine solution, concentration of 0.23% - do not swallow
- Coronavirus can be killed in the throat and nasal passage by using two readily available medicines hydrogen peroxide and povidone-iodine-based solutions.
- This procedure is recommended for medical staff, suspected patients (personal isolation, quarantine) confirmed patients at early stage of infection and persons who had close contact with COVID-19 patients. It is not recommended for severe patients who already developed pulmonary manifestation.

Widely available medicines to help prevent and treat COVID-19



Source: Dr. Alexander Andjaparidze using images from Darius Dan and Good Ware

Note: These measures are in addition to the protective behaviors communicated by WHO

*After 10 minutes gargle with warm water. Hydrogen peroxide solution is not recommended for children below the age of 16.

Hydrogen peroxide: benefits, user instructions and results

- Hydrogen peroxide rinse is a mild antiseptic commonly used for gargling and to help relieve minor mouth irritation. It works by releasing oxygen when it is applied to the affected area. The release of oxygen causes foaming, which helps to remove mucus and clean the area.
- It is well documented that hydrogen peroxide in concentrations of 0.5% is able to inactivate similar viruses, such as the human coronavirus 229E and SARS CoV FFM. This has been shown under experimental conditions on hard surfaces when hydrogen peroxide is applied for 60 to 120 seconds.ⁱ

¹ Key protective behaviors communicated by WHO against COVID-19 include frequently cleaning hands, covering nose when sneezing and mouth when coughing, and avoiding contact with people exhibiting flu like symptoms.

- Prevention will be strengthened, and treatment of infected persons improved with daily gargling for 60 seconds (followed by spitting out) of hydrogen peroxide solution with a concentration of 0.5 - 1% - do not swallow and after 10 minutes gargle again with warm water (not recommended under the age of 16). The hydrogen peroxide may cause some foaming in the mouth which is normal.
- Generally, hydrogen peroxide is available in pharmacies in 3% of water solution. For gargling, hydrogen peroxide should be further diluted in water (3 portion of water and one portion of 3% hydrogen peroxide solution). The diluted solution will be around 0.75% hydrogen peroxide.
- For those infected, the use of hydrogen peroxide in the early phase of infection can have the benefit of reducing virus load while allowing the immune system to prepare.
- The majority of patients that show signs of illness due to COVID-19 start with low or high temperature and flu like symptoms. The replication of the virus in early phases is more concentrated in the throat and nasal track. Inflammation in the lungs generally happens only during or after the second week. Reducing the virus load in early phases of infection, may prevent inflammation in the lungs and give sufficient time for the immunological response. This should reduce disease severity.
- Several studies investigated hydrogen peroxide ability to preserve antigenic epitopes and other studies used it as inactivating agent for development of viral vaccines against both DNA and RNA viruses including Lymphocytic Choriomeningitis Virus (LCMV), Yellow Fever Virus (YFV), West Nile Virus (WNV), Vaccinia virus (VV) and Monkeypox Virus (MPV) Rabies Virus.^{ii,iii,iv} In other words, the virus killed by hydrogen peroxide will act as antigen for production of specific antibodies.

Povidone-iodine: benefits, user instructions and results

- Povidone-iodine is a broad-spectrum antimicrobial that has been used in infection control and prevention for over 60 years.^v Povidone-iodine has well established general antimicrobial activity, demonstrating in vitro efficacy against many bacteria^{vi,vii,viii} and a wide range of enveloped and non-enveloped viruses^{ix,x,xi} including Ebola virus and MERS-CoV.^{xii,xiii}
- Considering the proven in vitro efficacy, gargling with povidone-iodine may be an effective method of preventing the spread of respiratory viruses. The benefit of gargling with povidone-iodine has been noted in Japanese clinical respiratory guidelines.^{xiv}
- Four times a day nasal spray and gargling for 15 seconds of povidone-iodine solution (do not swallow), concentration of 0.23% is sufficient to kill the coronavirus in the nasal and oral cavity. This has been documented in published research.^{xv}
- The safety profile of povidone-iodine is well established. In contrast to other antiseptic agents, oral povidone-iodine care products do not lead to any irritation or damage of the oral mucosa, even with prolonged use.^{xvi} Although measurable systemic iodine absorption may occur with the long-term use of, povidone-iodine its clinical manifestation as thyroid dysfunction is not very common.^{xvii}

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