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The Error at the Base of the Nebulized Peroxide Controversy

Analysis by Dr. Joseph Mercola ✔ Fact Checked

STORY AT-A-GLANCE

- The Asthma and Allergy Foundation of America and the media are now warning against using nebulized hydrogen peroxide for respiratory viruses such as SARS-CoV-2
- There is absolutely zero evidence that supports the idea that properly diluted hydrogen peroxide nebulization is hazardous. On the contrary, several health benefits have been demonstrated, both clinically and anecdotally
- Recent research shows COVID-positive patients who irrigated their sinuses with a saline-iodine solution were 19 times less likely to be hospitalized for COVID-19 than the national rate
- Another recent paper recommends nebulizing 1.5% hydrogen peroxide twice daily as an at-home treatment for COVID-19, and by hospitalized patients who do not yet require intensive care
- Nebulizing with normal saline, hypertonic 3% saline, hydrogen peroxide and iodine have all been shown to safely improve respiratory infections. I recommend diluting peroxide with normal saline for a 0.1% concentration, and adding one drop of Lugol's iodine

September 22, 2021, The Washington Post published an article citing warnings from the Asthma and Allergy Foundation of America (AAFA),[1] which triggered a frenzy of media articles warning against using nebulized hydrogen peroxide for respiratory viruses such as SARS-CoV-2.

"A leading asthma patient group has issued a warning against an unproven coronavirus treatment circulating on social media that is leading some people to post videos of themselves breathing in hydrogen peroxide through a nebulizer.

The Asthma and Allergy Foundation of America called the action 'concerning and dangerous' in a Tuesday blog post,[2] emphasizing that it will neither treat nor prevent the virus and is harmful to the lungs. 'DO NOT put hydrogen peroxide into your nebulizer and breathe it in. This is dangerous!' the foundation wrote."[3]

According to the AAFA,[4] "Hydrogen peroxide can be used as a cleaner and stain remover, and can cause tissue damage if you swallow it or breathe it in." In their blog,[5] the AAFA also cites the Agency for Toxic Substances and Disease Registry, which notes that:[6]

"Hydrogen peroxide can be toxic if ingested, inhaled, or by contact with the skin or eyes. Inhalation of household strength hydrogen peroxide (3%) can cause respiratory irritation. Exposure to household strength hydrogen. peroxide can cause mild ocular irritation. Inhalation of vapors from concentrated (higher than 10%) solutions may result in severe pulmonary irritation."

Front Group Blames Me for Peroxide 'Misinformation'

According to The Washington Post, the Great Reset front group known as the Center for Countering Digital Hate (CCDH) has identified me as the source and driver behind the trend to nebulize hydrogen peroxide as an antiviral prevention and treatment for respiratory viruses:[7]

"In April 2020, Mercola posted a video saying 'hydrogen peroxide treatment can successfully treat most viral respiratory illnesses, including coronavirus,' according to the advocacy group Center for Countering Digital Hate …

Imran Ahmed, chief executive of the Center for Countering Digital Hate, said he blames Mercola for advancing hydrogen peroxide as a coronavirus treatment.

He called hydrogen peroxide 'a really volatile chemical and a bleaching agent,' and expressed concern that even saline-diluted solutions could be harmful if used instead of legitimate treatments or vaccines.

'This is not just about the primary effect of telling people that hydrogen peroxide can affect covid. It means people will reject other therapies when they are in trouble,' Ahmed said. 'It means people get sick and, rather than getting the treatment they need, they will start looking on Amazon for a nebulizer and hydrogen peroxide.'"

What the 'Experts' Are Missing

There's just one really major problem with this suppression attempt, and that is that they're assuming people aren't following instructions. From the get-go, my instructions have been quite clear.

It is really important to dilute the hydrogen peroxide with saline to get a 0.1% solution, as indicated in the chart below; 99.9% of what you're inhaling is literally harmless saline, not peroxide. As I'll discuss further below, saline may even have distinct health benefits of its own. The Washington Post, to their credit, did include my response to their inquiry for this story:[8]

"In an email, Mercola said: 'The solution you are referring to is primarily saline, with highly diluted hydrogen peroxide. It is important to ensure that people use saline to dilute the hydrogen peroxide to 0.1%; 30X lower concentration than the standard peroxide found at the local pharmacy. High concentrations of hydrogen peroxide should not be used.'"

Starting Peroxide Concentration	Hydrogen Peroxide	+	Normal Saline	=	Ending Peroxide Concentration
3%	1/4 tsp	+	7 1/4 tsp	=	.1%
12%	1/4 tsp	+	5 ounces	=	.1%
36%	1/4 tsp	+	15 ounces	=	.1%

To the reporter's shame, he did NOT include any of the scientific references I included in my response. He'd asked if I was "aware of any peer-reviewed research supporting the use of nebulized hydrogen peroxide to treat COVID" and I sent him five scientific papers discussing the use of saline with hydrogen peroxide mixtures. He didn't even mention the existence of these studies, so I'll review them here.

Saline-Iodine Irrigation Reduces Hospitalization by 1,900%

The first paper, posted on the preprint server medRxiv in mid-August 2021, titled "Rapid Initiation of Nasal Saline Irrigation: Hospitalizations in COVID-19 Patients Randomized to Alkalinization or Povidone-Iodine Compared to a National Dataset,"[9] sought to determine whether irrigating the nasal passages within 24 hours of a positive PCR test would reduce the risk of hospitalization for COVID-19 among patients over the age of 55.

Patients were randomly assigned to irrigate their nasal passages with one of two regimens. One used a mixture of 2.5 milliliters of 10% povidone-iodine (an antimicrobial) and standard saline. The other used a mixture of saline with half a teaspoon of sodium bicarbonate (an alkalizer).

All irrigated their nasal passages twice a day for 14 days. The findings were then compared to patient outcomes found in a Centers for Disease Control and Prevention database. According to the authors:

"Of 79 patients assigned to nasal irrigation … 0/37 assigned to povidone-iodine and 1/42 patients in the alkalinization group had a COVID-19 related hospitalization (1.26%) ...

There were no statistical differences in outcomes by irrigation unit used, of those with symptoms, resolution was more likely in the povidone-iodine group (19/25) than the alkalinization group (15/33 …).

Conclusion: Patients who initiated isotonic saline nasal irrigation after a positive COVID-19 PCR test were 19 times less likely to be hospitalized than the national rate. Further research is required to determine if adding povidone-iodine to irrigation reduces morbidity and mortality of SARS-CoV-2 infection."

Why did the reporter not bother to include this extremely timely paper? Was it because it shows simple saline irrigation reduces your risk of hospitalization with COVID-19 by 1,900%?

Peroxide Reduces Hospitalization Rate and Complications

The second paper The Washington Post ignored was published in April 2020. This paper, "Might Hydrogen Peroxide Reduce the Hospitalization Rate and Complications of SARS-CoV-2 Infection?" noted:[10]

"The efficient inactivation of coronaviruses (eg, SARS and MERS) on inanimate surfaces using hydrogen peroxide (H_2O_2 0.5% for 1 minute) was assessed by Kampf et al.

Based on their findings, and after reviewing the current literature concerning hydrogen peroxide, we propose that hydrogen peroxide, as an antiseptic agent, could play a pivotal role in reducing the hospitalization rate and COVID-19-related complications.

The antiseptic efficacy of hydrogen peroxide 3% against SARSCoV-2 on oral and nasal mucosa can be reasonably hypothesized. The antiseptic action is due not

only to the known oxidizing and mechanical removal properties of hydrogen peroxide but also to the induction of the innate antiviral inflammatory response by overexpression of Toll-like receptor 3 (TLR3).

Thus, the overall progression of the infection from the upper to the lower respiratory tract can be reduced.

Therefore, we advise an off-label use of H_2O_2 3% and 1.5 % (10 volumes) by oral and nasal washing respectively, performed immediately after the onset of the first symptoms and the presumptive diagnosis of COVID-19 and during the illness in home quarantine or by hospitalized patients not requiring intensive care.

We propose a regimen of gargling 3 times per day for disinfection of the oral cavity and nasal washes with a nebulizer twice daily (due to a greater sensitivity of the nasal mucosa).”

The authors stress the safety of hydrogen peroxide on mucous membranes, noting that it is frequently used in otolaryngology (ear, nose and throat medicine). They also present evidence showing no tissue damage is incurred in the mucous membranes after gargling with 3% peroxide for six months.

“In our opinion, the effectiveness of this regimen will be verified through a significant reduction of the rate of hospitalization and respiratory complications in patients positive for SARS-CoV-2 with and without mild-to-moderate symptoms,” the authors said.[11]

So, we have one study showing nasal irrigation with saline dramatically reduces your chances of coming down with severe COVID-19, and another paper recommending the use of 1.5% to 3% hydrogen peroxide for gargling and nasal irrigation at first symptoms, and the safety thereof. But what about INHALING saline and hydrogen peroxide? Does inhalation suddenly make these two ingredients dangerous?

Saline Nebulization Helps Clear Airway Infections

Starting with saline, inhaling nebulized saline is certainly not a health hazard. Quite the contrary. In February 2020, researchers found nebulizing normal saline may actually be safe and effective treatment for acute viral bronchiolitis (a viral infection in the small airways of your lungs).[12]

In clinical trials that evaluate nebulized drugs, saline is typically used as a placebo, but a systematic review and meta-analysis concluded it produced consistent clinical improvements, and should be considered an active treatment for this condition.

An even earlier double-blind study,[13] published in 2007, assessed the effectiveness of nebulized hypertonic saline in the treatment of viral bronchiolitis in infants. Here, they found that nebulizing with 3% hypertonic saline, in conjunction with standard therapy, reduced the length of hospital stays by 26% in infants with moderately severe infection, compared to nebulizing with standard saline (0.9% sodium content).

Hypertonic saline, which has a higher salt content than normal saline, is a known mucolytic, meaning mucus thinner.[14] Salt attracts water. When inhaled, the salt attracts water, thereby thinning any mucus lodged in your airways. This makes the mucus easier to expel when you cough. According to the authors:[15]

> *"The treatment was well tolerated, with no adverse effects attributable to the use of HS [hypertonic saline]. The use of nebulized 3% HS is a safe, inexpensive, and effective treatment for infants hospitalized with moderately severe viral bronchiolitis."*

A similar study but done on adults with COPD was published in October 2017 in the CHEST Journal.[16] Here, the drug albuterol was mixed with either hypertonic saline or standard saline. The hypertonic saline mix was more effective and provided greater relief than normal saline, although both had a beneficial impact.

In addition to that, 1.5% hypertonic saline has also been shown to be 100% effective in blocking SARS-CoV-2 replication, without any side effects.[17,18] Its mechanism of action is surprisingly simple: When you breathe it in, the extra salt forces your cells to expend ATP to rebalance their electrolyte gradient. Viruses also need ATP to replicate, so by using up ATP, the cells have far less ATP left for viral replication.

Why Didn't WaPo Review the Science?

The Washington Post ignored all of these studies as well, and opted to cite the CCDH's concerns instead. According to Ahmed, "even saline-diluted solutions could be harmful if used instead of legitimate treatments or vaccines." I'd like Ahmed to actually name a "legitimate" early at-home treatment.

To this day, not a single early treatment has actually been green-lighted by public health authorities. Patients are simply told to do nothing, wait at home until they are unable breathe, and then go to the hospital. This is patient abandonment and reprehensible criminal medical negligence, plain and simple.

To dissuade patients from nebulizing with saline at first signs of respiratory infection is unbelievably ignorant, considering how safe it is. And again, my recommendations have always been to dilute the hydrogen peroxide to a 0.1% solution, which means you're inhaling 99.9% saline. That said, what do we know about nebulizing peroxide? Is there anything to warrant concern?

Peroxide Nebulization and COVID Resolution

For this, let's turn to the documentation from two medical doctors who have used nebulized peroxide extensively in their practices. In a May 10, 2021, Orthomolecular Medicine press release,[19] Dr. Thomas E. Levy — board-certified in internal medicine and cardiology — discussed the use of this treatment for COVID-19 specifically.

During a trip to Colombia, he'd met a family friend who was coming down with what appeared to be a common cold, or possibly influenza. Having treated his own chronic sinus problem with nebulized peroxide for nearly a year, he just so happened to have all the necessary paraphernalia with him.

After nebulizing with straight over-the-counter 3% hydrogen peroxide for 15 minutes, she was feeling significantly better. The treatment was repeated the following day, and the day after that, "she was completely well." It is important to note that Dr. Levy and I

disagree on the concentration to use. He prefers 3% and I believe lower concentrations of 0.1% are more appropriate.

When Levy left Colombia, he let her keep the nebulizer, and some three months later, COVID-19 emerged as a pandemic. During 2020, Levy's Colombian friend ended up treating 20 individuals with COVID-19 infections (seven of them had been tested and tested positive), most of whom were "significantly ill" with labored breathing by the time they saw her.

All of them significantly improved after nebulizing with 3% hydrogen peroxide for 30 minutes three times a day for two days, followed by a 50/50 peroxide-saline mixture three times a day for three days.

"At the end of five days, all 20 patients appeared to have achieved complete clinical cures," Levy said. Levy has in fact written an entire book on peroxide nebulization called **"Rapid Virus Recovery," which you can download for free from MedFox Publishing**.

More Evidence Supporting Peroxide Nebulization

Dr. David Brownstein, along with six other co-authors, has also published an informative case history on nebulized peroxide for COVID-19. This case report paper, titled "A Novel Approach to Treating COVID-19 Using Nutritional and Oxidative Therapies" was published in the journal Science, Public Health Policy, and the Law, in July 2020.[20] You can **download the PDF here**.

> **"Is nebulized peroxide diluted with saline, with or without iodine, dangerous? No. There's no evidence to suggest there's a danger to this protocol, unless you radically violate recommendations on dilution."**

Of the 107 confirmed COVID-19 patients treated, 91 (85%) used nebulized peroxide diluted with normal saline, plus Lugol's iodine. As explained in Brownstein's paper:

"A solution of 250 cc of normal saline was mixed with 3 cc of 3% hydrogen peroxide providing a final concentration of 0.04% hydrogen peroxide … Additionally, 1 cc of magnesium chloride (200 mg/ml) was added to the 250 cc saline/hydrogen peroxide bag. (This was mixed in the office for the patients.)

Patients were instructed to nebulize 3 cc of the mixture three times per day or more often if there were breathing problems. Usually one or two nebulizer treatments were reported to improve breathing problems.

A total of 91 COVID-19 subjects (85%) utilized the nebulized solution. They reported no adverse effects. We have been using nebulized saline/hydrogen peroxide at this concentration for over two decades in his practice.

Hydrogen peroxide is continually produced in the human body with substantial amounts produced in the mitochondria. Every cell in the body is exposed to some level of hydrogen peroxide.

The lungs are known to produce hydrogen peroxide. Nebulized hydrogen peroxide has been shown to have antiviral activities. Hydrogen peroxide can activate lymphocytes which are known to be depleted in COVID-19."

Iodine Irrigation for COVID-19

In an August 18, 2021, fully referenced preprint paper,[21] Leo Goldstein also reviews the scientific literature supporting gargling and nasal irrigation with povidone-iodine (PVP-I). He points out that:

"PVP-I has been used for decades as a broad-spectrum antiseptic in dentistry and otolaryngology, so its use for COVID-19 is not re-purposing. PVP-I has been widely used in India to prevent nosocomial transmission of COVID-19 … Gargling with PVP-I was recommended by Japan's Ministry of since the 2009 pandemic flu, and by the government of China since the beginning of the COVID-19 pandemic."

Goldstein also cites clinical trials showing PVP-I nebulization prevented hospitalizations and deaths from COVID-19 by as much as 90%.

> *"Application of 0.5%-1.0% PVP-I solution to the nasal cavity, oral cavity, nasopharynx, and oropharynx, 2-4 times per day, is an excellent prophylaxis and adjuvant treatment of early COVID-19," Goldstein writes, adding:*
>
> *"Its use would also prevent or sharply decrease transmission of the virus from contagious persons. Povidone-Iodine (PVP-I) is available over the counter. This is the conclusion from the available literature, including physicians' recommendations."*

Mexico City Case Study

Lastly, we also have a case series[22] from Mexico City, where nebulized hydrogen peroxide was safely used with good effects. As detailed in the abstract:

> *"Knowledge of the antiseptic effects of hydrogen peroxide (H_2O_2) dates back to the late 19th century, and its mechanisms of action has been amply described. Globally, many physicians have reported using H_2O_2 successfully, in different modalities, against COVID-19.*
>
> *Given its anti-infective and oxygenating properties, hydrogen peroxide may offer prophylactic and therapeutic applications for responding to the COVID-19 pandemic.*
>
> *We report a consecutive case series of twenty-three COVID-19 patients … who had been diagnosed by their primary care physician … and twenty-eight caregivers in the Mexico City Metropolitan Area who received a complementary and alternative medicine (CAM) telemedicine treatment with H_2O_2 taken by mouth (PO, at a concentration of 0.06%), oral rinse (mouthwash, 1.5%), and/or nebulization (0.2%) …*

> *The patients mainly recovered well, reporting feeling 'completely better' at 9.5 days on average. Two (9%) were hospitalized prior to joining the study, and one did not fully recover … Given its low cost and medical potential and considering its relative safety if used properly, we suggest that randomized controlled trials should be conducted."*

Final Verdict

So, is nebulized peroxide diluted with saline, with or without iodine, dangerous? No. There's no evidence to suggest there's a danger to this protocol, unless you radically violate recommendations on dilution. Even nebulization with 3 or 7% hydrogen peroxide appears to be quite safe, but it would be a very serious hazard to use peroxide of greater concentrations.

Food grade peroxide up to 35% concentration can be obtained and should NEVER be used topically or internally. It MUST be diluted or severe injury can occur. Your safest bet is to use 3% food grade peroxide and dilute it as indicated in the chart provided above, so you end up with a solution of 0.1%.

As for nebulizing saline, be it normal 0.9% saline or hypertonic 3% or even 7% saline, there's virtually no risk to this at all. It is important to note that even infants have safely nebulized 3% hypertonic saline in clinical studies, with no adverse effects. So, I stand by my recommendation to use nebulized peroxide for any suspected respiratory infection, and the earlier you start, the better.

There is no danger in doing it every day if you're frequently exposed, and likely there are additional health benefits, as even at a 0.1% solution, it will rapidly raise your blood oxygen level. It may also improve your bowel movements, which may be a result of eliminating respiratory pathogens that were having negative impact on your microbiome.

Sources and References

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