



# Dirty CPAP equipment could be making users sick

The importance of CPAP cleaning and best practices



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# Introduction

CPAP therapy is considered the gold-standard treatment for the 22+ million Americans who suffer from sleep apnea<sup>1</sup>, but unfortunately, CPAP equipment is a breeding ground for bacteria and germs.

For individuals who find that they are feeling sick more than normal, a dirty CPAP could be the culprit. Pathogens are everywhere – and they thrive in warm, moist environments just like CPAP equipment. Placing a dirty CPAP mask directly on one's face allows these pathogens to enter the body through the mouth and nose, making the user highly susceptible to infectious diseases.

This is one of the reasons why CPAP manufacturers recommend cleaning CPAP equipment regularly. Those pathogens certainly aren't going anywhere on their own, so it's up to CPAP users to take on the responsibility of eliminating them. That said, cleaning CPAP equipment with soap and water or CPAP wipes comes with its own set of frustrations – and may not even be all that effective according to a number of studies.

Just how high is the risk of getting sick from dirty CPAP equipment? Why aren't many of the recommended cleaning methods good enough? And is there a solution that actually works? Read on to find the answers to all these important questions.

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<sup>1</sup> <http://www.sleepapnea.org/i-am-a-health-care-professional.html>

# CPAP Users Have a High Risk of Getting Sick from Dirty Equipment

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*Again, this all comes back to CPAP equipment being a breeding ground for bacteria and germs.*

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A 2014 study published in the Canadian Medical Association Journal sheds some light on the link between sleep apnea, CPAP therapy and pneumonia – a potentially deadly respiratory infection that affects the lungs. The conclusion? Adults with sleep apnea have a 20% increased risk of being diagnosed with pneumonia than those in a control group and CPAP therapy bumps that risk up to 32%, due in part to poor CPAP maintenance.<sup>2</sup>

But pneumonia isn't the only illness that CPAP users have to fear. According to a 2007 study published in the Journal of Clinical Sleep Medicine, CPAP users have an 18% higher risk of getting infectious diseases like the cold and the flu than those who don't use CPAP therapy.<sup>3</sup>

Again, this all comes back to CPAP equipment being a breeding ground for bacteria and germs. In a report presented

to the Medical Silicone Conference in 2010, senior microbiologist K. Mark Wiencek, Ph.D. examined the cause of healthcare-acquired infections associated with medical devices such as CPAPs.<sup>4</sup> Wiencek explained that microbes (i.e. bacteria) only need a bit of moisture to survive, and he pointed to CPAP masks as an example of microbe-friendly devices that are difficult to clean properly. He concluded his report by stating that “use of an antimicrobial agent may appear to be the sole missing ingredient to solve [medical-device related] problems.”

In a separate report, researchers from Brigham and Women's Hospital and Harvard Medical School collected samples from CPAP masks and found 2,000+ bacteria counts evident on 48% of the units after just 48 hours.<sup>5</sup> They went on to stress the importance of – you guessed it – regular cleaning.

How much higher is a CPAP users risk of getting pneumonia?

**+20%**

If you have sleep apnea

**+32%**

If you have CPAP therapy

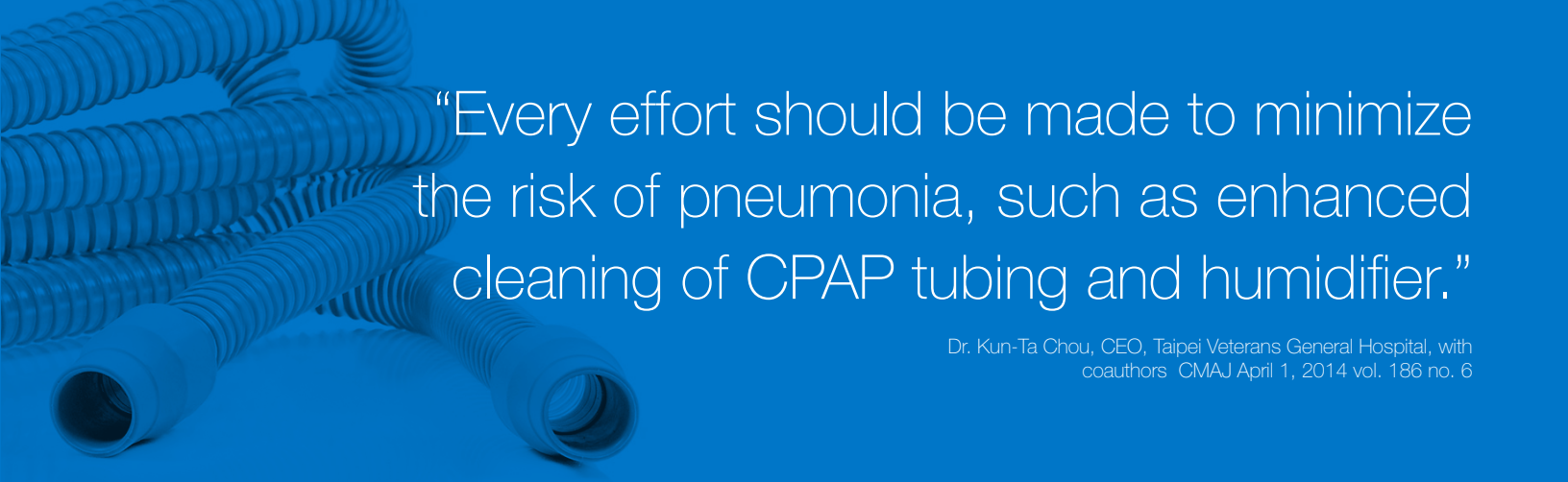
<sup>2</sup> <http://www.cmaj.ca/content/186/6/415>

<sup>3</sup> <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2556912/>

<sup>4</sup> [http://medicaldesign.com/site-files/medicaldesign.com/files/archive/medicaldesign.com/microsites/silicone-conference/Mark\\_Wiencek.pdf](http://medicaldesign.com/site-files/medicaldesign.com/files/archive/medicaldesign.com/microsites/silicone-conference/Mark_Wiencek.pdf)

<sup>5</sup> [http://www.pureflowhealthcare.ca/pdf/Horowitz\\_APSS\\_poster\\_2009\\_mask\\_microbes.pdf](http://www.pureflowhealthcare.ca/pdf/Horowitz_APSS_poster_2009_mask_microbes.pdf)





“Every effort should be made to minimize the risk of pneumonia, such as enhanced cleaning of CPAP tubing and humidifier.”

Dr. Kun-Ta Chou, CEO, Taipei Veterans General Hospital, with coauthors. CMAJ April 1, 2014 vol. 186 no. 6

## Current Recommended CPAP Cleaning Methods

Now that we've established the importance of maintaining a clean CPAP, let's review the recommended CPAP cleaning methods.

**Wipes:** There are wipes that are specifically designed for cleaning and deodorizing CPAP masks and accessories. By regularly using these wipes, the idea is that CPAP users can effectively reduce the buildup of pathogens, grease and oils.

Unfortunately, research shows that wipes alone may actually do more harm than good. In a 2015 article published in the American Journal of Infection Control, researchers studied seven different detergent wipes to determine their ability to remove and transfer pathogens.<sup>6</sup> They found that while the wipes were variably effective in removing pathogens, all seven of them “repeatedly transferred bacteria and spores onto multiple surfaces,” thus demonstrating the limitations of this cleaning method.

**Vinegar and Water:** A solution of vinegar and water can be used to clean out the water reservoir on a weekly or monthly basis. However, much like the soap and water method, this is a time-consuming process, as users are required to let the reservoir soak for 20-30 minutes, then

rinse it out thoroughly and let it dry. The vinegar also produces an odor that has been known to irritate the sinuses.

**Soap and Water:** This process typically consists of taking CPAP equipment apart and washing each piece with warm, soapy water, then rinsing with warm water and letting the equipment air-dry. The air-drying part is essential, as lingering moisture attracts pathogens.

While the soap and water method is generally considered to be effective, it can be frustratingly time-consuming to clean all those crevices by hand – not to mention inconvenient to have CPAP equipment spread out all over the place while drying. This cleaning method can also be difficult and physically taxing for individuals with dexterity limitations or disabilities.

And of course, there's always a margin of error involved. It's nearly impossible to adequately clean every last piece of one's CPAP equipment by hand – and even a small amount of leftover pathogens can cause an infectious disease.

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*Unfortunately, research shows that wipes alone may actually do more harm than good.*

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<sup>6</sup> <http://www.ncbi.nlm.nih.gov/pubmed/25997876>

# SoClean: The Faster, Easier, More Effective Solution

For individuals seeking a better way to maintain a clean CPAP, the SoClean Automated CPAP Equipment Sanitizer is a highly effective solution – plus it's faster and easier than other cleaning methods.

The SoClean uses ozone – also known as O<sub>3</sub> or activated oxygen – to sanitize CPAP equipment. And it's so effective that it can help reduce the risk of getting sick.

What is Ozone – and How Does It Work?

Ozone is a 100% safe, naturally occurring gas that has been used to purify water since the 1800s. In today's world, it's a trusted sanitizing process used by hospitals, food handlers and the hotel industry.

Ozone is one of the most effective, complete bactericides of all earth's measurable elements, and it's been proven to kill virtually all known forms of bacteria in water and air.<sup>7</sup> Here's how it works, according to Ozone Solutions:<sup>8</sup>

“Ozone interferes with the metabolism of bacterium-cells, most likely through inhibiting and blocking the operation of the enzymatic control system. A sufficient

amount of ozone breaks through the cell membrane, and this leads to the destruction of the bacteria [...] Ozone destroys bacteria by diffusing through the protein coat into the nucleic acid core, resulting in damage of the viral RNA. At higher concentrations, ozone destroys the capsid, or exterior protein shell by oxidation so DNA (deoxyribonucleic acid), or RNA (ribonucleic acid) structures of the microorganism are affected.”

Ozone has been shown to be effective in destroying dozens of harmful pathogens, including E. coli, Influenza Virus, Staphylococci, Streptococcus Bacteria, Stomatitis Virus and many more.

In addition to being highly effective, the SoClean is also easy to use. After a simple, one-time setup, CPAP users simply place their mask in the SoClean, close the lid and walk away. No disassembly of the mask, hose or water reservoir is required – and no soap and water, wipes or messy chemicals are needed. When the SoClean is done sanitizing the user's CPAP equipment, it will be completely dry and ready to use.

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*“Had a cold I  
couldn't kick  
despite regularly  
washing  
[my] mask in  
antibacterial  
dish soap. Two  
days after using  
SoClean, cold  
[was] gone and  
has not returned.”  
– Barry Reiss*

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*“SoClean changed  
the c-pap experience  
for the better. Best  
investment I have  
made. My health  
has improved. It is  
simple to use and I  
am not worried about  
infections.”  
– Ronald D. Wolfe*

## Is Ozone Safe to Use?

Unlike air purifiers that use ozone and unsafely discharge that ozone into the air, the SoClean does not release ozone into the outside environment. It generates ozone and sanitizes CPAP equipment within a closed-loop system. Any gas that escapes this process passes through a special filter that converts it back into breathable oxygen first. Residual ozone that remains in the system naturally reverts back into the air we breathe in about two hours time.



## Facts About SoClean

Considering the effectiveness of ozone in destroying pathogens, let's take a look at some interesting facts that highlight the overall effectiveness of SoClean:

- The SoClean kills 99% of CPAP germs, bacteria and other pathogens in the user's mask, hose and reservoir.<sup>9</sup>
- 90.8% of SoClean users say their health has stabilized or improved since using the SoClean.
- 96.8% of SoClean users say they would recommend SoClean to friends, family members and coworkers.
- 76% of SoClean owners continue to use their CPAP as they normally did but over 23% have stated that they have increased their CPAP compliance.
- Over 92% of SoClean owners sanitize daily or every other day.

## The Bottom Line

A CPAP is essential to treating obstructive sleep apnea. It should only be making obstructive sleep apnea patients feel better – not worse. The best way to prevent pneumonia, the flu and other infectious diseases is to keep one's CPAP clean, but some of the recommended cleaning methods just aren't cutting it.

Cleaning should be simple. That's the philosophy behind the SoClean Automated CPAP Equipment Sanitizer. To learn more about this #1-rated CPAP-cleaning device, visit [www.SoClean.com](http://www.SoClean.com).

<sup>7</sup><http://www.poolcenter.com/ozoneFaq>

<sup>8</sup>[http://www.ozoneapplications.com/info/ozone\\_bacteria\\_mold\\_viruses.htm](http://www.ozoneapplications.com/info/ozone_bacteria_mold_viruses.htm)

<sup>9</sup><https://www.betterrestsolutions.com/soclean-original/soclean-lab-results/>





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*SoClean is not intended to diagnose, treat, cure, or prevent any disease.  
The SoClean unit is not PAP (CPAP, BPAP, APAP) equipment. If you have  
questions about sleep apnea or PAP equipment please visit a qualified doctor.*

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