

Website explains how hospitals can decontaminate and reuse N95 masks to fight COVID-19

April 2 2020, by Tom Abate



Stanford researchers helped lead the nationwide scientific team behind N95decon.org, a website that synthesizes the scientific literature regarding how to decontaminate and reuse this scarce, protective face gear to battle COVID-19. Credit: Unsplash/Brian McGowan

As health workers and first responders in the United States try to stem a

pandemic without adequate protective gear, health officials are forced to consider a stopgap—decontaminating and reusing N95 masks to shield those whose jobs expose them to the virus that causes COVID-19.

On April 1, a team of 60 scientists and engineers, students and clinicians, drawn from universities and the private sector, unveiled N95decon.org, a website that synthesizes the [scientific literature](#) about mask decontamination to create a set of best practices to decontaminate and reuse this protective face covering during the current emergency.

"While there is no perfect method for decontamination of N95 masks, it is crucial that [decision-makers](#) and users have as much information as possible about the strengths and weaknesses of various approaches," said Manu Prakash, an associate professor of bioengineering at Stanford who helped coordinate this ad hoc, volunteer undertaking. "We aim to provide information and evidence in this critical time to help those on the front lines of this crisis make risk management decisions given the specific conditions and limitations they face."

The [team members](#) who came together over the last few weeks scoured hundreds of peer-reviewed publications, and held continuous online meetings to review studies of decontamination methods that have been used on previous viral and bacterial pathogens and then to assess the potential to use these methods on the novel SARS-CoV-2 virus that causes COVID-19.

Their goal was to provide overwhelmed [health officials](#) with reliable, pre-digested [scientific information](#) about the pros and cons of three decontamination methods should local shortages force a choice between decontamination and reuse or going unmasked.

The three methods involve either heat and humidity; a specific wavelength of light called ultraviolet C (UVC); or treatment with

hydrogen peroxide vapors (HPV).

The scientists did not endorse any one method but instead sought to describe the circumstances under which each might be effective against the virus provided rigorous procedures were followed. They concluded, for instance, that devices that rely on heat are effective under specific temperature, humidity and time parameters. With UVC devices, the group advised making sure masks are properly oriented to the light so the entire surface is bathed in sufficient energy. They also found that the HPV method could potentially be used to decontaminate masks in volume—a recommendation that is backed by the U.S. Food and Drug Administration, which has already certified certain vendors to offer hydrogen peroxide vapor treatments on a large scale.

N95decon.org will help facilitate the rapid deployment of these emergency measures by pointing decision makers to sources of reliable and detailed how-to information provided by other organizations, institutions and commercial services. For example, the U.S. Centers for Disease Control on Tuesday released a data-driven fact sheet and a detailed overview for implementing the same three decontamination methods.

Prakash and his collaborators stressed that decontamination does not solve the N95 shortage and expressed hope that new masks will be made available to [health care workers](#) and first responders in large numbers as soon as possible. Meanwhile, the ad hoc volunteers have pledged to continue working together to update the N95decon.org website as new information becomes available and to coordinate their research efforts.

"The scientific volunteers who made this happen came together in this time of crisis to help workers and administrators make informed decisions about N95 [decontamination](#) and standard operating procedures based on their own specific circumstances," said Hana El-Samad, a

professor of biochemistry and biophysics at the University of California, San Francisco, in a joint statement.

More information: www.n95decon.org/

Provided by Stanford University

Citation: Website explains how hospitals can decontaminate and reuse N95 masks to fight COVID-19 (2020, April 2) retrieved 3 May 2024 from <https://medicalxpress.com/news/2020-04-website-hospitals-decontaminate-reuse-n95.html>

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