



**Multi-Layered Air Defense Strategy (MLADS™)
Q&A Fact Sheet**

Q: What is the Multi-Layered Air Defense Strategy (MLADS™)?

A: The MLADS™ is a model based upon a foundation of education and best available science to protect the air we breathe. This model focused especially on indoor spaces where people gather. It integrates traditional public health guidance with an emphasis on air handling and layering technologies.

Q: What is the best way to explain this model?

A: The best way is to think about multiple layers, each of which can stop some airborne pathogens or contaminants. If you layer these concepts and technologies, they work together to remove almost all contaminants or airborne pathogens. We've included a copy of the abridged version as an attachment to this Q&A. The complete version is available on the Mission-Next Website.

Q: Is the model just buying a technology?

A: Absolutely not! While the model uses different technologies, each is only a layer. It is the multiple layers working together in sequence tailored to the application that dramatically decreases the risk of airborne transmission.

Q: Who developed this approach?

A: The model was first developed by a consortium of researchers, led by Retired Lt Gen Dr PK Carlton Jr, the 17th Surgeon General of the Air Force. Working together at the Air University in February and March of 2020, this diverse group of scientists and doctors published a series of white papers culminating in one published in July, 2020, jointly between Air University, Auburn University, and the McCrary Institute, which falls under the Department of Homeland Security.

Q: Has anyone adopted this model?

A: Yes, quite a number of institutions have, including the Air University, certain applications at the Pentagon and other critical no-fail missions, including some Afghanistan and other locations. It has also been used in Veteran's homes, medical offices and hospitals, as well as schools and businesses.

Q: What does this model say about socially distancing, wearing masks or getting a vaccine?

A: Each of these established Public Health interventions work. While we support each of these, in the model, each is another layer. Some people make a personal choice not to receive a vaccine or to wear a mask, and we support their right to choose when it doesn't harm others. Our job is to educate people so that they can pick the best tools in the model, whether traditional public health tools or different technologies. In this way they make informed decisions about protecting themselves and those who depend upon them.

Q: Is there one "best" technology?

A: Despite what some manufacturers claim there is no one single "silver bullet" solution to preventing airborne spread because every space is different. Some of the technologies available are good, some are ineffective, some are way overpriced, and others can even be dangerous. Only by using multiple overlapping safe technologies, protocols, and techniques deployed efficiently with air handling Subject Matter Expertise can we decrease the transmission of infectious pathogens.

Q: Is the model only effective against COVID?

A: No, it is not only effective against COVID. Based upon best available science, all respiratory pathogens share common mechanisms of transmission through the air, either through droplets or aerosols. Protecting the air against COVID also protects against other common respiratory diseases, such as Influenza, Mycoplasma, Tuberculosis, the Measles, or the Common Cold. Based upon best available science we think it will also be effective against new or emerging variants.

Q: I hear a lot about droplet and aerosol transmission. What's the difference and does this matter to me?

A. It does matter, and it is why we focus so much on education. While we talk about droplets and aerosols as two different things, they really are part of a continuum, but here's one easy way to explain it:

Droplets are the big heavy particles you see when you cough or sneeze. If you are sick, those droplets can carry infectious diseases like COVID and the other pathogens. Because they are so big and heavy, they tend to fall to the ground within 3-6 feet. This is the argument for socially distancing, using plexiglass shielding, or wearing medical or even non- medical grade masks. For droplets we think of "distance" and "shielding."

Aerosols are the much smaller particles, many of which can't be seen with the naked eye. They tend to float around for many minutes or even hours and can carry infectious particles. These aerosols are more difficult to control because they are small enough to pass through many of the filters we use. The only solution we have found with aerosols

May 2022

are increasing the exchange of free clean air into a room, using special filters and things like UV to inactivate the pathogens, or using other special technologies to clean the air using additional scavenging technologies.

If you'd like to learn more about the different types of technologies, the ISASRB website has a technology overview that explains this information more in depth.

Q: If the model specifically is effective, why has it taken so long for to hear about this?

A: Because this was initially developed by researchers within the Air Force, it took time to get the word out to the civilian population. Since early 2021, the Independent Shared Air Strategic Research Board (ISASRB), under the Mission-Next Foundation, has been operating on donations of time and in-kind support, which has worked to get the word out to all citizens. Other reputable academic organizations developed similar models during the same time frame.

Q: If focusing on the airborne transmission of COVID and other respiratory pathogens works so well, why am I just hearing about it?

A: For a variety of reasons, early in the pandemic, the United States focused a majority of its efforts on surface transmission. It took the Centers for Disease Control (CDC) over a year (April, 2021) to acknowledge that airborne transmission was a mechanism of transfer. Today the best science tells us that practically all COVID transmission occurs through the air, and our previous focus on surface cleanliness probably did very little.

Q: I hear all sorts of conspiracies behind why we were slow to recognize and act on protecting the air? Can I trust anyone about this anymore?

A: There are no villains in this story. All of the Subject Matter Experts give their best advice based upon their understanding of the problem from where they sit.

No one sought to mislead the American people. We as a nation just got it wrong and spent much of our time at the beginning of the pandemic focusing on the wrong things such as cleaning groceries or wiping down surfaces. While we support these things as basic good hygiene to prevent the spread of other diseases, these things probably had little to no impact on the transmission of COVID and likely gave us a false sense of security.

The solution to preventing airborne spread of disease is difficult because it involves not only clinical medicine and public health, but also application engineering and applied sciences including biology, virology, physics, chemistry, airflow turbulence and many others.

This is difficult, and we as a nation, or as scientists, are not usually organized to be able to think, or act, across disciplines like this.

May 2022

Q: What is happening now?

A: In March 2022, the White House and the EPA announced the Clean Air in Buildings Challenge, which reinforced the science behind clean air, the importance of education, and the importance of consulting credible subject matter experts to implement the Challenge.

While it took a full two years from the beginning of the pandemic to get to where we are currently, we are excited we finally got here!

Q: How does the Clean Air in Buildings Challenge Work?

A: The White House and the EPA have joined together to educate the public about the importance of clean air, direct people to credible resources to inform them on how to protect the indoor shared air they are responsible for, encourage them to consult with subject matter experts, and explore the multiple Federal Funding sources designed to help individuals and entities adopt these strategies and technologies.

Q: I see many companies trying to sell their technologies. How do I know which one is best?

A: This is difficult for the consumer who wants to protect the shared air they are responsible for. We encourage you to learn from credible independent sources, such as ASHRAE (American Society for Heating Refrigerating and Air Conditioning Engineers) or the EPA (Environmental Protection Agency). These are credible organizations who are not trying to sell any one product, and they are a good place to start.

Q: Where can I learn more about these ideas?

A: One reputable place is the Independent Shared Air Strategic Research Board, sponsored by the Mission-Next Foundation (Mission-NextFoundation.com) where there is more information. Please visit our website or contact us directly for more information on our website or an interview with the team of volunteers.

For more information contact, contact us at www.mission-nextfoundation.com/isasrb.

Copyright © 2021 Independent Shared Air Strategic Research Board. The Independent Shared Air Strategic Research Board (ISASRB) is a non-profit, non-partisan, volunteer board of medical and public health professionals, scientists, air quality experts, application engineers, architects, educators, strategic planners, and private citizens working collaboratively to develop creative strategies to protect shared air in the United States of America. This document is placed into the public domain under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License to encourage dissemination and build a coalition to protect shared air. Comments and suggestions for improvement are welcomed as part of the ongoing scientific process.

*All protocols are subject to change based on emerging science and practice.

May 2022

426 South Lamar Blvd, Ste 13 Oxford, MS 38655