

# The AERD Center

at Brigham and Women's Hospital

Information for patients with aspirin-exacerbated respiratory disease (AERD) / Samter's Triad

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## MESSAGE FROM OUR DIRECTORS

This past year has been a difficult one for all of us, and we are hopeful that the health and wellbeing of our patients, our country, and our world will continue to improve. Many of our AERD patient visits over the past year started with a long-time patient first asking “Are you okay? How is your team and your family doing throughout this pandemic?” -- these moments of concern and kindness and appreciation for our own safety and wellbeing were so touching. Thank you.

We have continued to push forward with a number of new studies finishing up or about to start up, with new discoveries coming slowly but steadily so that we are starting to better understand the inflammation that causes AERD. In turn, this is helping us to be better at treating it too.

Dr. Tanya Laidlaw,  
Dr. Kathleen Buchheit  
& Jillian Bensko, PA-C

**AERD Awareness Day**  
**September 26<sup>th</sup>, 2021**

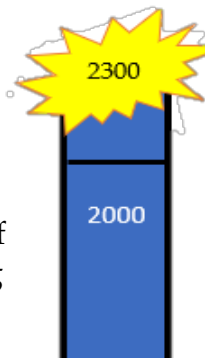
Show your support by spreading awareness and learning more at [www.samterssociety.org](http://www.samterssociety.org)!

## BY THE NUMBERS

We are thrilled to announce that we have surpassed our initial goal of registering 2,000 AERD patients! We now have over 2,300 patients in our AERD Registry. As our registry is growing, so is our knowledge about AERD. Based on responses, registry members are 69.2% White, 19.8% more than one race, 2.2% are Black or African American, and 2.2% American/Alaskan Native. 73.1% of participants identify as female and 26.9% as male.

Additionally, our data have shown that 86.1% of registrants have adverse reactions when drinking alcohol, with symptoms like nasal congestion, runny nose, shortness of breath, and wheezing. This is certainly a frustrating problem that many AERD patients have noticed, though we do not yet fully understand the cause of these reactions.

GOAL: 2000



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## COVID-19 IN PATIENTS WITH AERD

SARS-CoV-2 has been a major stressor in many people's lives for over a year now, and this virus has been especially dangerous for patients with pre-existing health conditions. Although asthma has not been a particularly dangerous risk factor for severe COVID-19, it has still created an extra degree of stress for our AERD patients. Several AERD centers around the United States collaborated to evaluate the impact of COVID-19 on our AERD patients, and upon analysis of a series of 19 patients with AERD who developed COVID-19, they did not appear to experience increased morbidity compared to the general population with COVID-19. Around 79% of these patients were being treated with respiratory biologics for their baseline AERD and experienced a mostly mild infection. It is intriguing that a strong type 2 inflammatory signal in the respiratory tract — a signal that most patients with AERD exhibit — might be protective against severe COVID-19.

[\[PMID: 33965591\]](#)

## SAFETY OF COVID-19 VACCINES IN AERD PATIENTS

After a hectic year, the long-awaited arrival of a COVID-19 vaccine helped to ease the concerns of many. This left people wondering: is it safe to get the vaccine if I have AERD? An abundance of data has shown that patients with asthma, sinus disease, nasal polyps, or aspirin/NSAID allergy are not at an increased risk of adverse reactions to these vaccines. Patients who have a history of severe anaphylaxis to anything are still recommended to receive the COVID-19 vaccine, per CDC guidance. A 30-minute observation period can be expected after receiving the vaccine if you have a history of anaphylaxis. So far we have the most experience with the Pfizer and

Moderna vaccines, which have been shown to be very safe and efficacious in preventing COVID-19. It is recommended that all people receive the vaccine if they are able to do so. Hundreds of our AERD patients have already been fully vaccinated and we would encourage anyone who is still waiting to go ahead with vaccination.

## ASPIRIN THERAPY AND EXPRESSION OF ACE2 IN COVID-19 INFECTION

Shortly after the COVID-19 pandemic erupted, our AERD Team here at Brigham and Women's Hospital began working to debunk a dangerous rumor: that aspirin/NSAID use could lead to more severe COVID symptoms. If proven, this would have been life-changing news for millions who take aspirin daily. Notably, it would impact our patients with AERD who regularly take high-dose aspirin as an effective treatment.

Thankfully, we were able to investigate this with a study using samples from our asthma and AERD patients, and our data show that daily high-dose aspirin use is not associated with more of the ACE2 receptor (that SARS-CoV-2 uses to infect the nasal cells), or any other factors that could lead to more severe COVID symptoms. We are excited to share these newly published results with a huge thanks to everyone involved in the study! You can read more about this in our paper, "Influence of daily aspirin therapy on ACE2 expression and function - implications for SARS-CoV-2 and patients with aspirin-exacerbated respiratory disease." [\[PMID: 33987897\]](#)

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## Efficacy of Dupilumab

In recent years, biologics have become a more common treatment option for patients with AERD. Respiratory biologic medications targeting interleukin (IL)-4R $\alpha$ , IL-5, and IL-5R  $\alpha$  are approved for severe asthma and have recently been approved or being are studied for nasal polyps. We looked at the charts of 41 patients in our AERD registry who were treated with mepolizumab, reslizumab, or benralizumab (all anti-IL-5/5R  $\alpha$ ). 27 of the 41 patients then transitioned to dupilumab for inadequately controlled symptoms while 14 remained on mepolizumab. For the 27 who switched to dupilumab from the other biologic, sinus symptoms, asthma symptoms, and lung function all improved and asthma flares were reduced while on the dupilumab. This suggests that some patients with AERD respond better to dupilumab than the biologics targeting IL-5 or IL-5R  $\alpha$ . Although the study has limitations, it highlights the need for further prospective studies on respiratory biologic use in patients with AERD.

## CURRENT RESEARCH

### ONGOING STUDY 1: The importance of smell

Earlier this year we sent out a survey to all of our Registry participants with several questionnaires asking about the consequences of lack of smell, or anosmia, in their lives. As COVID-19 has also affected the sense of smell of millions of patients, understanding the value of smell is more important now than ever before. We received over 800 patient responses (THANK YOU to all who participated!) and are analyzing the data now. So far we have learned that a decreased sense of smell correlates with a general feeling of poor overall health, and that for the majority of AERD patients, lack of smell also leads to less enjoyment of food and drink and to a concern of the inability to identify if food is

spoiled/rotten. We hope to have all of this completed by the end of the summer to publish and teach the world about.

### ONGOING STUDY 2: Sinus tissue analysis

Aaqib Sohail, PhD, is characterizing different cell types within sinus tissues, focusing primarily on antibody-producing cells known as plasma cells. The cause of nasal polyposis in AERD is under debate, but patients with AERD would agree that nasal polyps can be extremely irritable and uncomfortable. We have been collecting the polyp tissue from patients with AERD undergoing surgery, which allows us to study and understand the differences between AERD and non-AERD cells at protein and RNA levels. The goal of this study is to determine the role of the IL-5 receptor protein molecules present in large quantities in AERD plasma cells. These receptor molecules could also be the reason why many AERD patients have increased antibody levels in their nose. Understanding the role of this molecule may have diagnostic and therapeutic implications for AERD patients.

### ONGOING STUDY 3: Ifetroban

As a patient with aspirin-exacerbated respiratory disease, you know how disabling the reactions and the disease can be. We are carrying out a NIH funded research study to see if a drug taken by mouth can block aspirin induced reactions and may help treat AERD. In this study, we will give you the drug or inactive placebo and perform an aspirin challenge. The study involves 3 visits over 8 weeks, and you will be compensated up to \$225 for participating in the study. If you are interested in hearing more, call the Asthma Research Center at 617-732-8201 or email Dr. Tanya Laidlaw at [tlaidlaw@partners.org](mailto:tlaidlaw@partners.org).

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## ONGOING STUDY 4: 2-Year follow-up of aspirin-exacerbated respiratory disease registry ("2-FAR")

2-FAR is a 24-month long study that examines the symptoms and progression of disease in patients with AERD. We reached our goal of having 100 participants from the AERD Registry enrolled in this study. The participants will complete a series of 9 sets of surveys, every 3 months over the course of the 2 years. They just completed the 9-month follow-up survey, so thank you to everyone who has been a part of this study! The information gathered will help us better understand long-term health outcomes for patients with AERD, as well as how new biologic medications might be beneficial.

## NSAID ALLERGIES AND OPIOID USE DISORDER

The opioid epidemic remains a pressing public health issue in the US, with opioid-related overdoses claiming over 45,000 lives in the US each year. While nonsteroidal anti-inflammatory drugs (NSAIDs) are commonly prescribed as first-line treatment for acute and chronic pain, their use can be limited by history of drug allergy. Allergy over-reporting and lack of further investigation by an allergist may lead to unnecessary avoidance of NSAIDs and overuse of opioids. Members of our research team investigated the risk conferred by the label "NSAID allergic" on the development of opioid use disorder in a large retrospective cohort of over 47,000 adults with chronic back pain. Results of this study showed reported NSAID allergies to be associated with higher risk for receiving opioid prescriptions and for developing opioid use disorder. These findings highlight the important role of allergists in the multidisciplinary care of patients with painful conditions and NSAID allergies, and further our understanding of the

impact of reported NSAID allergies on patient outcomes. [[PMID: 32916184](https://pubmed.ncbi.nlm.nih.gov/32916184/)]

## NEW STAFF

### Dr. Stella Lee, MD

Dr. Stella Lee is an ENT-otolaryngologist joining us from Pittsburgh, Pennsylvania. She received her medical degree from Chicago Medical School at Rosalind Franklin University and then went on to complete her residency at Yale University.



She was a fellow at Johns Hopkins University and specializes in rhinology and skull base surgery. Her research interests include the sinonasal microbiome, the role of viruses in the propagation and survival of bacterial biofilm in patients with cystic fibrosis, as well as the environmental factors in the development of upper airway inflammation and chronic rhinosinusitis.

### Tessa Ryan, BA

Tessa graduated from Hamilton College in May 2021 where she double majored in Biochemistry/Molecular Biology and Hispanic Studies. She is an AERD clinical research coordinator and is planning to go to medical school in the future.



### Alanna McGill, BA

Alanna graduated from Hamilton College in May 2021 where she majored in Neuroscience. She is an AERD clinical research coordinator and is planning to go to PA school in the future.



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