



Podcast:
“It Takes 2: Type 2 Inflammation”

Moderator:

California State Senator Melissa Hurtado

Featuring:

Dr. Mandeep Kaur, Vice President, Head, North America Medical for Dupixent at Sanofi Genzyme
Dr. Tyra Bryan-Stephens, Director and Founder, The Community Asthma Prevention Program, Clinical Professor of Pediatrics, The Children’s Hospital of Philadelphia, Perelman School of Medicine at the University of Pennsylvania
Carole Huntsman, Head, Sanofi Genzyme North America and US Country Lead

Voiceover: Welcome to the Women In Government podcast. Whether discussing important issues or policies of the day, this is a place where lawmakers and decisionmakers unite to get the conversation started.

Senator Melissa Hurtado: People of all ages, genders and backgrounds are connected by similar challenges because of one lesser known chronic condition known as Type 2 Inflammation. Hi, I’m California State Senator Melissa Hurtado. Thank you for listening to the latest Women In Government podcast, *It Takes 2: Type 2 Inflammation*.

Recent scientific developments have shown that this overactive immune system response underlies different atopic, allergic and inflammatory diseases. What exactly does that mean, and how does it affect our families and communities? That’s what we’re going to uncover with our panel of experts.

Joining the conversation is Carole Huntsman, head of [Sanofi Genzyme North America](#) and U.S. Country Lead. She has more than 25 years of pharmaceutical and biotech experience. Additionally, Carole was commissioned as an officer in the U.S. Army.

Carole Huntsman: Thank you, Senator. Sanofi has been an active participant and partner in Women In Government for well over a decade. We really appreciate all of the work that WIG and its members have done educating state legislators and public policy members about important health issues, and we certainly support their efforts to shape public policy to better patient lives.

Senator Melissa Hurtado: We also have Dr. Tyra Bryant-Stephens, MD, director and founder of the [Community Asthma Prevention Program](#), Clinical Professor of Pediatrics, The Children’s Hospital of Philadelphia, Perelman School of Medicine at the University of Pennsylvania.

Dr. Tyra Bryant-Stephens: Thank you, Senator. I’m happy to be here today. The Community Asthma Prevention Program has been in existence for over 23 years, and we have learned so much about what it takes to calm and to control Type 2 asthma disease.

Senator Melissa Hurtado: Dr. Mandeep Kaur is also on our panel. Dr. Kaur is vice president and head, [North America Medical for Dupixent at Sanofi Genzyme](#). She is a physician by training with more than 15 years of research and development experience in both drug and device development.



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Dr. Mandeep Kaur: Thank you, Senator, for the kind introduction, and again thank you to the Women In Government team for making this happen. It’s an absolute honor to be here.

Senator Melissa Hurtado: Finally, I want to take a moment to thank everyone who is listening and remind you to like or share our podcast. You can also email us by visiting WomenInGovernment.org.

Science has shown that excessive Type 2 inflammation can impact different tissues and contribute to a number of diseases, like asthma and atopic dermatitis, or AD. There’s a lack of awareness about this condition which means people may not fully understand their diseases and how they may be connected. For instance, 50% of adults with AD report having asthma.

Dr. Kaur, I think a great place to get started is for us to find out more about Type 2 inflammation. What exactly is it, and can you explain a few characteristics?

Dr. Mandeep Kaur: Absolutely. So, Type 2 inflammation is a normal part of our body immune system. For meant fighting off certain kinds of infection, but excessive Type 2 inflammation may lead to disease. There are several types of inflammation, and Type 2 inflammation is one specific pathway which is defined by different certain signaling proteins, immune mediators, immune cells like the Th2 cells that the pathway is named after.

The scientists are mapping out the specific components of Type 2 inflammatory pathway and their interactions and in order to better understand how this pathway works and contributes to the disease. So emerging science has so far shown that excessive Type 2 inflammation – a specific kind of overreactive response of the immune system – can underlie seemingly unrelated diseases such as atopic dermatitis, asthma, chronic rhinosinusitis with nasal polyposis. There are also some studies ongoing and looking at the role of Type 2 in eosinophilic esophagitis, aspirin-exacerbated respiratory disease, and certain food and environmental allergies.

The underlying Type 2 inflammation can help explain some of the unifying features of these diseases of lung, skin, and upper airway and why these diseases (which are inflammatory and chronic) often coexist, and I’m trying to emphasize here that there is this inflammatory component in these patients because these patients are suffering from these diseases for a long time.

Senator Melissa Hurtado: As the doctor noted, it’s important to focus on the words “chronic” and “inflammatory,” especially when talking about the lungs, skin, and upper airway. Let’s dig in a little deeper. What are a few signs and symptoms of the condition in terms of asthma, skin, and upper airway?

Dr. Mandeep Kaur: So, as you can imagine, the word “chronic” means that these are the diseases that are impacting patients’ lives for a very long time. When we talk about chronic, in some cases this is a lifelong disease. So, let’s take a closer look at starting with atopic dermatitis. It’s a rash, but it’s a rash in the skin that can cause such intense, persistent itch and skin dryness, that it can lead to, in some cases, crusting, redness and itching. In the other cases, because of the intense itching, before a patient knows it, the patient already has a bacterial infection going on.



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Regarding asthma, another chronic inflammatory disease, often lower airway which is characterized by coughing, wheezing, difficulty breathing, and in some cases the asthma attacks are so severe that these patients have to go to the emergency room or have to be hospitalized to further get the treatment.

Now chronic rhinosinusitis and nasal polyps – I understand it’s a mouthful – is also a chronic inflammatory disease, and it’s an upper airway disease. As we know, the upper airway and the lower airway is separated by epiglottis in the throat. The way the chronic rhinosinusitis with polyposis works, it’s basically something stuck in your nose. You can see with these patients there’s a constant pressure building up in their sinuses, and you can see that this is just basically sinusitis. Well, there is a sinusitis component, but also this condition has been happening for many years in this patient population. You will have difficulty breathing. You’ll have nasal congestion. You’re going to have discharge, and what we’ve heard from these patients is that there’s also reduced sense of smell and reduced sense of taste which is such an important part of everyday life.

So, as we noted, these patients are suffering a lot with these diseases. Often these diseases like atopic and asthma have been viewed as atopic diseases, meaning that there is an underlying tendency or predisposition to allergic reactions. So, while all these responses are often triggered by environment, the excessive, chronic inflammation that underlies them have the same features.

Let me share a quick example, airborne allergens like pollen. We all are so familiar with that. Pollen can trigger an allergic response in those with pollen allergies and induce an asthma attack. The same pollen can come in contact with the skin and induce an itchy rash in some patients with atopic dermatitis. Although these symptoms are different, the body reacting to pollen can be different with the specific type of inflammation that spans across atopic dermatitis and asthma.

(Music)

Senator Melissa Hurtado: Many people with diseases driven in part by underlying Type 2 inflammation live with uncontrolled symptoms, particularly those with moderate-to-severe-disease. About 54 % of asthma patients in the U.S. who are on treatment still have inadequately controlled disease. Up to 48 % of adults with moderate-to-severe AD are in a similar situation despite topical therapy, and around 40 % of people with chronic rhinosinusitis who receive surgery experience recurrence of polyps within 18 months. What is the burden of the disease on patients and their families? I understand you have a personal connection to Type 2 inflammation.

Dr. Mandeep Kaur: Yes, I do, Senator. My kids have atopic dermatitis and asthma. I had atopic dermatitis and never got diagnosed. I think I self-diagnosed myself when I became an adult. I didn’t have any treatment while I was growing up, and also my father has asthma and nasal polyposis. Understanding the burden of the disease and how it takes a toll on a family plays a very big role to understand these diseases and how these different inflammatory components play a role in that. The symptoms of these diseases can have a negative impact on a person’s quality of life. The coexisting component of the disease will further impair health-related quality of life and increase the burden of the symptoms for patients and people living with them.



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Then when you think about people with one or more moderate-to-severe disease characterized by underlying Type 2 inflammation, they may have an unpredictable, persistent and uncontrollable symptom that can lower their quality of life such as making them miss important events when these symptoms worsen. So not only that, these diseases cost billions of dollars to society and patients for looking at direct health cost, indirect cost such as absenteeism which means missing school, missing work. In the U.S. alone, these costs are estimated to be more than \$80 billion for asthma and more than five billion for atopic dermatitis, so not only a burden on the individual, their family, but society as well.

Senator Melissa Hurtado: Many people experience substantial impacts on their everyday lives which increases with disease severity and in the presence of multiple coexisting diseases. “Coexist” is an important word. Doctor, can people have more than one Type 2 inflammatory disease?

Dr. Mandeep Kaur: Yes, they do, and any of these diseases that I was referring to may coexist with each other in the same person. So, for example, up to 50 % of adults with atopic dermatitis, they also self-report as having asthma. Around 13 % of adults with moderate-to-severe atopic dermatitis, they also have self-reported having chronic rhinosinusitis with nasal polyposis. Then we’ve also seen data where up to 48 % of adults with chronic rhinosinusitis with nasal polyposis has asthma.

(Music)

Senator Melissa Hurtado: It’s not uncommon for the management of disease to become more challenging when someone has multiple coexisting conditions. Up to 35 % of people with asthma also have AD, and up to 50 % of those with AD have asthma. Looking at some of the numbers, about 25 million people in the U.S. have asthma, 15.6 million Americans have atopic dermatitis, and around one to five % of the country lives with chronic rhinosinusitis.

I’d like to bring Dr. Bryant-Stephens into the conversation. As director and founder of the [Community Asthma Prevention Program](#), or CAPP, and Clinical Professor of Pediatrics for The Children’s Hospital of Philadelphia, Perelman School, can you tell us about these populations and if there are disparities in those affected by Type 2 inflammation, specifically asthma?

Dr. Tyra Bryan-Stephens: In the United States, about 13 % of children have asthma. It’s the most common chronic asthma disease for children in the U.S., and in cities like Philadelphia where I live and work, one out of four children have asthma. So, it’s very prevalent, especially in communities with lower income, and we know that asthma is a disease that really reflects the impact of structural racism in our society. Asthma disparities are real. Black and brown people are more likely to have asthma. Black people are two to three times more likely to be hospitalized or have emergency visits for asthma and up to four to five times more likely to die. So, we know that this a disease that is burdensome, as Dr. Kaur mentioned, and is prevalent throughout the United States.

Senator Melissa Hurtado: According to CAPP, there are a variety of social determinants of health: racism, income, health care and education, just to name a few. Doctor, will you provide a little more insight into these categories?



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Dr. Tyra Bryan-Stephens: As I mentioned, racism is a driving force for most of these disparities and other social determinants such as education, food, access to health, poverty. It all impacts how asthma is managed with families. We know that poor children are likely to live in neighborhoods with limited resources. The families are more likely to have financial stressors which puts them in survival mode and, as you can imagine, if you’re in survival mode, day-to-day kind of survival activities compete with the ability to manage asthma. As Dr. Kaur mentioned, this is an episodic disease. So even though there’s chronic inflammation, most people don’t have symptoms every day. So, the likelihood with all of these social determinants interfering and burdening families, the likelihood is that sometimes the medications aren’t given every day, and that also increases the likelihood that the symptoms are not noticed until they become more severe which leads to hospitalization and emergency room visits.

But also know that moms tend to be the main managers of the household, and their mental health and education really impacts how asthma management occurs in the day to day life and, of course, schools. Dr. Kaur mentioned absenteeism. Absenteeism from asthma is the most common reason children miss school. So many of these schools, studies show, are riddled with allergies because of substandard buildings and inability to keep schools well-maintained. So many of these social determinants are as important as any medication that we can give for Type 2 asthma.

(MUSIC)

Senator Melissa Hurtado: Poor housing conditions impact health outcomes. A quote from Aristotle, says, “Tell me how a man died, and I’ll tell you where he lived.” Times may have changed, but that saying still resonates for many in our communities. Can you tell us how asthma is impacted by housing conditions?

Dr. Tyra Bryan-Stephens: Absolutely. We know that zip codes are the biggest predictor of life expectancy, and this is also true with asthma. It’s due to a number of conditions in the neighborhood, some of which I mentioned, but for asthma, substandard housing is really important. So with substandard housing, you have increased allergens, and some of the common allergens are mice, cockroach, dust, mold, and you can imagine that homeowners who have limited incomes and have homes in many cities which have been around for 50 to hundreds of years are not able to maintain those homes. So, we see even intrusion of outdoor allergens into the home because of deficits in the structural building.

Senator Melissa Hurtado: Doctor, what are we seeing when it comes to asthma-related hospitalizations and emergency room visits?

Dr. Tyra Bryan-Stephens: We know that, as Dr. Kaur mentioned, it’s a chronic inflammatory disease. I just spoke about some of the indoor allergens. So, children tend to have peak hospitalization and emergency room visits – and people in general, so children and adults – in the fall and in the winter/spring. This is because, for children at least, school starts in the fall usually, pre-COVID, and with the children coming into the schools, they pass respiratory viruses along which is a major trigger for asthma. So, you have children who already have what we call twitchy airways from the chronic



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inflammation who then encounter these viruses. In the spring, even the outdoor allergens, pollens and grass allergens, may cause hospitalization and emergency room visits.

Senator Melissa Hurtado: Another social determinant of health is social support. Can you tell us about CAPP’s efforts to reduce disparities?

Dr. Tyra Bryan-Stephens: CAPP has taken a very comprehensive approach to managing asthma along with our partners in many disciplines in the community outside of our own healthcare organization. We always try to approach things with partnership, leveraging others’ expertise as we try to address many of the social determinants. We recognize that kind of the foundation is education and optimal asthma management with medication, but this alone will not work. So, this end, we’ve developed a program that utilizes community health workers in almost all settings that impact children. So, in the home, the community health workers provide asthma classes one on one with the parent and the child over three to four sessions, and then we follow them for a year. In that year, we try to offer them not only reinforcement of the educational messages but also reinforcement of some of the behaviors like taking the medication every day but also, how do you reduce exposure to asthma triggers?

Our community health workers then are able to connect directly with the primary care health team. They’re considered part of the healthcare team. They are assigned to an office within the inner-city Philadelphia where they are able to navigate with the family as well as advocate for any needs. We advocate for clear communication. We try to identify [resources](#). In the school, we work with school nurses, and we provide asthma classes as well as directly observe therapy for control in medication. Then the most recent kind of exciting thing that we’re doing now is we’re actually doing housing repairs or repairing structural deficits like roofs, like holes in the walls, like poor flooring, absent ceilings, mold, wet basements through partnership with the housing repair agencies. That’s been really exciting. We’ve managed to work with over 60 homeowners so far in that.

Senator Melissa Hurtado: What are a few of the outcomes?

Dr. Tyra Bryan-Stephens: First of all, as we talk to families, as our community health workers meet with families, they try to improve the self-management behaviors, so that’s one of our outcomes, and we’ve been really successful with that. We look at reduction of triggers in the homes, and we find that on average we may identify five to six things that need to be changed, and parents on average are able to at least address four of those triggers. Then in terms of healthcare utilization and dollars, we have seen a 50 % reduction in hospitalizations and emergency room visits in our cohort.

(Music)

Senator Melissa Hurtado: When we add up the dollars, Type 2 inflammation costs the U.S. billions each year. The medical expenses, days missed from work and school, and deaths due to asthma is more than 80 billion. Atopic dermatitis costs about five billion, and the range of overall chronic rhinosinusitis-related health care costs has been quoted between three to 12.5 billion per year. That’s a lot of money, and last September I made sure 15 million in funds from Governor Newsom’s



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budget went towards asthma preventative services. In California, we’re trying to make life healthier for all community members. My hope is to one day completely eliminate asthma. Carole, I’d like to bring you into the conversation. How can legislators shape policy to address this issue?

Carole Huntsman: Well, the most important thing legislators can do is to return to your respective states and imitate a discussion about Type 2 inflammation to identify colleagues and possible issue champions. These chronic conditions disproportionately impact communities of color, as you’ve heard, and those in need in underserved communities. You could also draft a resolution to support the creation of a workgroup to increase chronic disease care information and screening that focuses on Type 2 inflammation and other chronic diseases, or create a legislative caucus to support measures to support Type 2 inflammation, or maybe review state asthma action plans to ensure they’re updated to include aggressive support for measuring issues related to asthma or Type 2 inflammation.

Senator Melissa Hurtado: In my case, [SB 207](#) allows Medi-Cal reimbursement for asthma education and home trigger assessments that are provided by qualified, non-licensed professionals including community health workers. This bill also increases financial support for environmental asthma trigger remediation in the home. Now I’d like to provide some time for closing statements. Carole, can we start with you?

Carole Huntsman: Thank you, Senator. What a pleasure it’s been to be involved in today’s discussion. As we all know during these challenging times, we have an even greater understanding that asthma is a very serious disease. Type 2 inflammation is an important health issue that many people are not aware of. Participating in this podcast today was a great opportunity to raise awareness of this chronic health condition and work with our patient advocacy partners to help others learn about it. At Sanofi, we are committed to continuing our research and development efforts to ensure that patients have access to the most advanced treatments for this condition.

Senator Melissa Hurtado: Dr. Kaur, any final thoughts?

Dr. Mandeep Kaur: First, thank you, Senator, for this opportunity, and then also that these Type 2 inflammatory diseases have so many social and health challenges, and we at Sanofi are committed to continuing the pursuit of treatment and public awareness so the patients have a better quality of life. While discussing about education and awareness, I’d like to remind to the audience that May is National Asthma and Allergy Month, and October is National Eczema Awareness Month. So please reach out. Ask questions, and help individuals and families suffering from these chronic inflammatory Type 2 diseases.

Senator Melissa Hurtado: Dr. Bryant-Stephens, how about you?

Dr. Tyra Bryan-Stephens: Thank you for this opportunity to talk about this, an important issue that impacts so many people in the United States, especially our children. I was really excited to hear about the senator’s bill, and I think efforts like these are really important to occur on a national basis. We are reimbursed for our community health worker services, but I know many of my colleagues



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across the country are not, and this really limits our ability to impact the social determinants of health which are major drivers of asthma outcomes. So, I just want to thank the entire panel, and it was my honor to participate in this discussion.

(Music)

Senator Melissa Hurtado: People living with Type 2 inflammatory diseases often feel limited by unpredictable symptoms and isolated in their experiences. It’s important for all of them to know they are not alone. For patients, the Type 2 inflammation connection can help them work with their doctors to gain control of their chronic disease. Bring up family history, discuss symptoms of other potential coexisting diseases, and talk about triggers. As for policymakers and industry leaders, these chronic conditions impact communities of color and those in underserved communities. Now’s the time to get to work and support measures to address Type 2 inflammation.

I’d like to thank all of our guests for joining us on the latest Women In Government podcast. I’d also like to thank all the listeners for taking the time to hear this important discussion. Don’t forget to subscribe to, like or share our podcast. You can also e-mail us by visiting WomenInGovernment.org

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