

Dr. Nadine Burke Harris

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Marianne O'Hare: Welcome to Conversations on Health Care with Mark Masselli and Margaret Flinter, a show where we speak to the top thought leaders in health innovation, health policy, care delivery, and the great minds who are shaping the healthcare of the future.

This week, Mark and Margaret speak with Dr. Nadine Burke Harris, California's first official Surgeon General. She's a noted expert on the impact of childhood trauma and long term health outcomes and has launched a program in California called ACEs Aware seeking to screen all Californians for exposure to Adverse Childhood Experiences. The goal is to minimize a lifelong harm to help by prescribing interventions.

Lori Robertson also checks in, Managing Editor of FactCheck.org looks at misstatements spoken about health policy in the public domain, separating the fake from the facts. We end with a bright idea that's improving health and wellbeing in everyday lives.

If you have comments, please e-mail us at chcradio@chc1.com or find us on Facebook, Twitter, or wherever you listen to podcast. You can also hear us by asking Alexa to play the program Conversations on Health Care. Now stay tuned for our interview with California's Surgeon General, Dr. Nadine Burke Harris here on Conversations on Health Care.

Mark Masselli: Welcome to Conversations on Health Care I'm Mark Masselli.

Margaret Flinter: And I'm Margaret Flinter.

Mark Masselli: We're speaking today with California's first Surgeon General Dr. Nadine Burke Harris. She's a pediatrician, author and renowned thought leader on the Science of Childhood Trauma and Adverse Childhood Events, which she examines in her popular 2014 TED Talk as well as her acclaimed book, *The Deepest Well: Healing the Effects of Long-Term Childhood Adversity*. Dr. Burke Harris received her MD from UC Davis and her master's in Public Health from Harvard. Dr. Burke Harris, welcome to Conversations on Health Care.

Dr. Nadine Burke Harris: Thank you so much for having me.

Mark Masselli: Congratulations on California's first ever Surgeon General and that selection I think speaks so powerfully to the intent. I'm wondering if you could talk a little bit about Governor Newsom's decision to create the role of State Surgeon General and choosing you as the first physician to hold that post and

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tell our listeners if you will.

Dr. Nadine Burke Harris: In his executive order creating the role of California Surgeon General, Governor Newsom actually wrote in the executive order, a recognition that early social determinants of health are some of the root causes of some of the most serious and expensive healthcare challenges. He recognized that these challenges are not only serious, but inequitable. He created the role of State Surgeon General specifically to marshal the insights and the energy of our medical professionals, academics, public servants, to be able to address these critical public health challenges to recognize that while we are as a state, we have the department of social services addressing child maltreatment, we have all of these pieces that are addressing each component of these issues. One of the pieces that are critical is to have this high level empowered leadership to work in a cross sector way, to bring some real innovative approaches to addressing some of our most difficult public health challenges.

Margaret Flinter: Well, Dr. Burke Harris, we now know that exposure to trauma in childhood has very dramatic, very far reaching effects on health outcomes. For our listeners, can you help them understand what you mean by trauma, toxic stress, Adverse Childhood Events or ACEs as we've come to know them, and the toll that it is exacting on population health right as we sit here?

Dr. Nadine Burke Harris: Yeah, so I think that it feels fairly intuitive that early adversity may be associated with later life, health and mental health challenges. But what's really fascinating was that we learned from a very large scale study that was conducted by the CDC and Kaiser Permanente about the strong association between stressful or traumatic events in childhood and some of the leading causes of death in the United States like heart disease, cancer, chronic lung disease, and even Alzheimer's. This groundbreaking study that was conducted by the CDC and Kaiser Permanente called the Adverse Childhood Experiences study, where they looked at 10 categories of Adverse Childhood Experiences and these include physical, emotional and sexual abuse, physical or emotional neglect, or growing up in a household where parent was mentally ill, substance dependent incarcerated where there was parental separation or divorce or domestic violence. Those are the 10 traditional Adverse Childhood Experiences.

The science that's emerged in the last two decades shows us that the mechanism by which this happens, right, the least

common denominator is that when an individual has these experiences, and especially during childhood when our brains and bodies are just developing, the repeated activation of our body's biological stress response, releasing stress hormones like adrenaline and cortisone actually changes the development of children's brains and bodies. This is what leads to the increased health risk and it's known as the toxic stress response. This over-activity of our biological stress response leading to increased risk of health problems is what's now known as the toxic stress response. Toxic stress is really the kind of root cause of many of the most serious and expensive health challenges that we're facing in our nation.

Mark Masselli:

Dr. Burke Harris, I think some of us learn through studies and you mentioned the 1990s seminal study that came up, but others are really, it's about storytelling that really impact them. This whole issue was brought home to you by a young patient named Diego. I wonder if you could just share that story with our listeners.

Dr. Nadine Burke Harris:

As a clinician, as a pediatrician, I didn't learn about any of the science when I was in medical school or residency. Even though this research was conducted in 1997, as a pediatrician working in a vulnerable community in San Francisco, what I was seeing clinically was that my patients who, as I was getting their history and hearing history of adversities that my patient had experienced, I happen to notice that my patients with the most significant histories of adversity also happen to have the worst health outcomes whether it was asthma or behavioral problems or even auto-immune disease. The kind of striking issue that stopped me in my tracks was one day I was in clinic and I had a new patient whom I called Diego.

This was a seven year old boy who came to see me for regular physical. I noted that he had lots of challenges with behavior and attention, he also have asthma. But when I measured his height and weight, his height was the average for four year old boy, which was striking because he was seven years old. What I learned was that he had experienced a sexual assault at age four, and essentially stopped growing. I was just absolutely shocked and as I was working with my colleagues, the endocrinologist who specializes in hormones, all of these. I said, have you ever heard of this before that a trauma might be the reason that this boy is not growing? Right, I've heard of malnutrition. That's what caused me to immerse myself in the science about how trauma and early adversity affects the developing brains and bodies of kids.

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Margaret Flinter:

Well, Dr. Burke Harris, I'd like to talk with you a little bit about the mechanisms of how trauma and toxic stress in childhood literally changes your biologic makeup and even your DNA structure. I have done a deep dive into these biologic mechanics of how traumatic events in childhood can affect the trajectory of your long term health. You really don't sugarcoat your findings in your book, 9 out of 10 of the leading causes of death in the United States are directly linked to some kind of childhood trauma or adversity. Our listeners, I think are really interested in really hearing some of the science behind this reality.

Dr. Nadine Burke Harris:

Yeah, so our increased understanding of how Adverse Childhood Experiences can lead to this over-activity of toxic stress response. It builds off of our understanding of the last several decades of brain biology and how there's much more that we know and understand now about how critical the early years are in brain development, and in actually shaping what we call the developmental trajectory, the subsequent development of the brain in response to experiences in early childhood. But one of the things that's really fascinating is advances in scientific research like functional MRIs and genomics and metabolomics has allowed us now to be able to measure things that we could never measure before.

What we now understand is that Adverse Childhood Experiences is also associated with changes in the way our hormones are released and how they act on the brain and body. It also affects the development of our immune system. We know that many of the leading causes of death are associated with diseases of chronic inflammation, and high doses of adversity actually can lead to changes in the way our DNA is read and transcribed, something that's called Epigenetic Regulation. When you change the DNA, it changes the way cells in the brain, the immune system, the hormonal systems react for the entire lifetime. These are all now part of what we understand to be the toxic stress response.

These advances in research are now targeting what are the factors and intervention that can heal an overactive stress response? Sleep, exercise, nutrition, mindfulness, mental health and healthy relationships, but we're actually recognizing now that these factors, and we can measure them yeah, reduce stress hormones, reduce inflammation, enhance neuroplasticity, which is the ability of brain cells to form new connections, and they delay cellular aging. This is an exciting new field of science in medicine.

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Mark Masselli:

We're speaking today with California's first Surgeon General Dr. Nadine Burke Harris. She's a pediatrician, author and renowned thought leader on the science of childhood trauma and Adverse Childhood Events. Dr. Burke Harris, prior to becoming California's first Surgeon General, you were a practicing pediatrician in an underserved community in San Francisco and founded the Center for Youth Wellness, an organization that seeking to harness the power of science, clinical best practices to address worse effects of ACEs. You're now on a mission to make screening for Adverse Childhood Events as common as any other pediatric metric. Tell us more about the system you're deploying in California, the ACEs Aware Initiative.

Dr. Nadine Burke Harris:

This is something that I am so excited about. The ACEs Aware Initiative is really a first of its kind, statewide initiative. Governor Newsom when he appointed me also allocated in his budget \$40.8 million to reimburse providers for screening for ACEs and responding with trauma informed care.

Mark Masselli:

Well, that's great.

Dr. Nadine Burke Harris:

Also allocated \$50 million to be deployed over three years on training providers, how to screen, how to respond with trauma informed care and supporting an infrastructure that's necessary to be able to effectively screen for ACEs in primary care. The National Academies of Sciences, Engineering, and Medicine just came out with a consensus report on this that was released in July. One of the key things that we know early detection and early intervention improves outcomes, and so how do we systematically deploy early detection and early intervention? It has to be through primary care. Right now, if a young person or an adult has a mental health diagnosis if they're depressed or suicidal, we say oh, wow, let's look at your history of trauma. But that means that that biology of toxic stress all that those stress hormones have been doing their work in that person's body for years and possibly decades before we identify, right. We're essentially identifying stage four.

If we look at anything else, if we look at cancer, if we look at any other public health threat, one of the most important advances has been improving outcomes, has been doing early detection so that our interventions can be less expensive. They're more likely to be effective, and they put less strain on our healthcare system. Here in California we just, I'm so proud, launched our ACEs Aware Initiative, the training website where any primary care clinician can go online. You don't even

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have to be from California, can sign up for the training and get the best of our clinical protocols, a clinical algorithm on how to screen for ACEs, how to recognize the signs, and how to respond with trauma informed care.

Margaret Flinter:

Well, Dr. Burke Harris, all of this requires that we think about our models of care and practice. But when we think about this issue of training, specifically, share your thoughts with us on how we begin to shift our health care curricular to prepare our future clinicians to work in interprofessional teams that can better address the causes and the results of childhood trauma.

Dr. Nadine Burke Harris:

As part of the ACEs Aware Initiative, not only has our team taken the best practice of the science, that until very recently, wasn't in clinical practice. Just as I talked about how advances in science have really helped us now understand better than we ever have before, how our environments and our experiences shape our biology. We also have to recognize that how do we coordinate our clinical response, because it can't just end in the exam room.

An important part of the work that is happening now is this notion of who does what, right? How do we divide and conquer so that it's not overwhelming for any individual practitioner? We know that trauma informed care, team based care, all of these things are best practices for addressing toxic stress. When we recognize that our environment shapes our biology, then that question of what happens in the primary care clinic, and how do we coordinate with community resources as well, to make sure we bring them to bear on behalf of our patients following up for accountability and looking at outcomes.

As part of the ACEs Aware Initiative that we're doing in California, we are actually creating a learning and quality improvement collaborative that will be deployed in 50 clinics across our state to advance best practices, collect data and share the best practices with any provider around the country who wants to use them.

Mark Masselli:

Well, that's great. You know, Dr. Burke Harris, I was just thinking about an interview we just had with Dr. Steven Woolf from Virginia Commonwealth University who was just released a seminal report on the fact that 25 to 64 year old were dying earlier. I couldn't help but, as you were talking thinking about, we've really got to start at the youngest age, trying to change the trajectory if we're going to turn that around. I can't help but think the work that you're doing will have a profound impact over the long term, and I don't know if you have any

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thoughts on that.

Dr. Nadine Burke Harris:

One of the challenges that we see is that when you have an exposure that happens in childhood, but the outcomes that you see are typically measured in adult morbidity and mortality, right? That question of how do we make the value proposition for the investments in our systems and infrastructure that's necessary to facilitate early detection, how do we know that it's transforming outcome? How do we show that it's transforming outcome? This is part of the reason why using the framework and screening for Adverse Childhood Experiences is so critically important, because while Adverse Childhood Experiences are not the only experiences that increase the risk for toxic stress. The ACEs don't ask about discrimination. They don't ask about separation from your parent because they were deported right? Like they don't ask about any of those things.

However, what they do allow us to do is because we have these very large dataset where we know for an individual who has four or more ACEs, their risk of kidney disease is 1.7 times as likely to have kidney disease. That means is that if we screen everyone, we do our interventions, and then we track the health outcomes of our population, we can not only measure our improvement, but we also have ability to quantify the cost, because we know the annual cost of treating kidney disease. We know the annual cost of treating cardiovascular disease. That's why the ACEs framework is not just an important tool for raising awareness, prevention and early intervention. It's also a very important tool to establish the metrics by which we will justify our investments.

Margaret Flinter:

We have been speaking today with pediatrician, author and expert on the science of childhood trauma, California's first Surgeon General Dr. Nadine Burke Harris. For information on the tools and screenings for ACEs in your health care practice you can visit www.acesaware.org by following her on Twitter @Dr. Burke Harris. You can find her very popular TED Talk @ted.org and read her book *The Deepest Well: Healing the Effects of Long-Term Childhood Adversity*. Dr. Burke Harris, thank you so much for your tenacity, your intellectual rigor, curiosity, your dedication to improving the health of America's children and all people and for joining us today on Conversations on HealthCare.

Dr. Nadine Burke Harris:

Thank you so much, it's been my joy.

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Mark Masselli:

At Conversations on Health Care we want our audience to be truly in the know when it comes to the facts about health care reform and policy. Lori Robertson is an award-winning journalist and Managing Editor of FactCheck.org, a nonpartisan, nonprofit consumer advocate for voters that aim to reduce the level of deception in US politics. Lori, what have you got for us this week?

Lori Robertson:

Democratic presidential candidate and former Vice President Joe Biden claims without evidence that “more people are coming home from Iraq with brain cancer” than any other war. He also suggested that burn pits open air waste incineration sites are behind the purported increase. Existing statistics do not indicate that Iraq veterans are more affected by brain cancer than other veteran groups. Although no comprehensive data is available to definitively say one way or the other.

A 2011 report by the National Academy of Sciences on the long term health effects of burn pit exposure in Iraq and Afghanistan found that there was “inadequate/insufficient evidence to determine whether there is an association with cancer.” Biden's comments came during a CNN Town Hall in Iowa on Veterans Day when he was asked by a woman in a military family how he as president would address the lack of mental health care and resulting homelessness amongst service members. After promising to provide more services to veterans, Biden brought up his eldest son Beau, who served in Iraq and died from an aggressive brain cancer in 2015.

We were unable to find any support for Biden's claim that more people are coming home from Iraq with brain cancer than ever before. His campaign did not reply to our request asking for a source for his statement. According to a 2015 Veterans Affairs Post Deployment Surveillance report, brain cancer prevalence was 0.04% for Vietnam veterans and 0.03% for both Gulf War veterans and those who served in Iraq and Afghanistan post 9/11. For more on this topic see our website. I'm Lori Robertson, Managing Editor of FactCheck.org.

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Margaret Flinter:

FactCheck.org is committed to factual accuracy from the country's major political players and is a project of the Annenberg Public Policy Center at the University of Pennsylvania. If you have a fact that you'd like checked, e-mail us at www.chcradio.com, we'll have FactCheck.org's Lori Robertson check it out for you here on Conversations on Health Care.

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Mark Masselli: Each week Conversations highlights a bright idea about how to make wellness a part of our communities and everyday lives. Students of public health are often tasked with devising interventions for addressing some of health biggest challenges. For Harvard T.H. Chan School of Public Health students, Dan Wexler and Priya Patel their idea netted an award. The students were tasked with addressing food insecurity in underserved parts of the world, including in neighborhoods in their own backyard. They thought of the current trend of healthy meal or meals services like Blue Apron and wondered what if we modified that business model to serve the needs of those living in food desert. Instead of home delivery approach they designed refrigerated kiosk that could easily be placed in local neighborhoods.

Dan Wexler: There is no delivery system door to door per se, and that by going and setting up these kiosks in the community, you can have a very lean design, you can have -- you don't need a storefront. You are very much addressing the need of access by physically saying, hey, here is healthy food, really thinking about how can we take all those lean design principles to facilitate access that really, I think making a solution that has a potential for impact.

Mark Masselli: They also conducted research with local ethnic groups to create recipes that would resonate with their families.

Dan Wexler: Then we just went down to the community and did taste testing at the Farmers' Market and talk to people and said, you know, do you like this? What do you want to be able to eat for dinner? Basically, we have some dishes that is similar textures, similar spices.

Mark Masselli: Customers can simply walk to the kiosk and purchase their meal kits with the snap cards or cash. They added benefits, the kiosk will be run by the residents of the neighborhood, giving them an opportunity to purchase the kiosk and run them like a franchise. Their idea earned them the Rabobank-MIT Food and Agribusiness Innovation prize. A low cost portable healthy meal service placed in portable kiosk and food desert neighborhoods to address the problem of poor nutrition, now that's a bright idea.

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Mark Masselli: You've been listening to Conversations on Health Care. I'm Mark Masselli.

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Margaret Flinter: And I'm Margaret Flinter.

Mark Masselli: Peace and Health.

Marianne O'Hare: Conversations on Health Care is recorded at WESU at Wesleyan University, streaming live at www.chcradio.com, iTunes, or wherever you listen to podcasts. If you have comments, please e-mail us at chcradio@chc1.com, or find us on Facebook or Twitter. We love hearing from you. This show is brought to you by the Community Health Center.

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