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A Magazine for Professionals Serving United States Public Health

EXCLUSIVE

VERNON SONDAK, MD

Celebrating 30 years of the "Mole Patrol" free community skin cancer screening program with Vernon Sondak, MD, Chair of Cutaneous Oncology at the H. Lee Moffitt Cancer Center and Research Institute, Tampa, Florida

EXCLUSIVE

MATTHEW CLARK, MD, FACP, FAAP

Supporting Liver Health and Cancer Prevention for Native Americans and Alaska Natives through the National Chronic Liver Disease Initiative with Matthew Clark, MD, FACP, FAAP, Indian Health Service Deputy Chief Medical Office and Chief Medical Officer Alaska Area Office

ADVANCEMENT IN HEALING DIABETIC FOOT ULCERS

A case report with board-certified wound management and podiatry surgery specialist Dr. Mark Dreyer, DPM

MAKING AMERICA HEALTHY AGAIN

Comments by Secretary Robert F. Kennedy, Jr., U.S. Department of Health and Human Services

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LOVE *Your Liver* –LOSE THE FAT!

ALMASED: Clinically Proven Nutrition for a Healthier Liver

By: Eric J. Rosenbaum, M.D.

Did you know 1 in 4 people has fatty liver disease—and most don't even know it? Whether caused by alcohol or metabolism, excess liver fat can lead to serious problems like cirrhosis, diabetes, or heart disease. But you can take control now—with Almased, the natural health superfood protein meal replacement clinically proven to reduce liver fat and improve metabolic health. And it's backed by 30 years of research and 31 published studies.

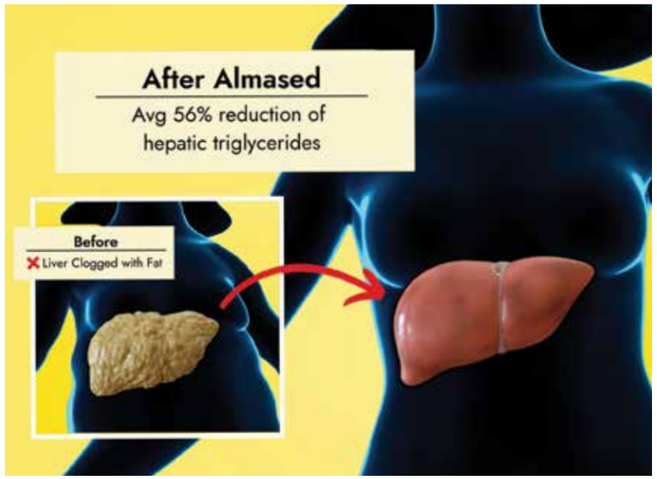
Why Doctors Recommend Almased

- **Clinically proven to reduce liver fat**
  A 6-month study showed significant liver fat reduction with Almased meal replacement.[1]

- **Lowers cholesterol, blood sugar & blood pressure**
  The international ACOORH trial showed better results than lifestyle changes alone.[2]

- **Supports healthy weight loss**
  People lost an average of 9 lbs in 4 weeks, with results lasting over a year.[2]

- **Nutritional powerhouse**
  High in protein, low in sugar, rich in essential amino acids & vitamin E, perfect for liver health and energy.



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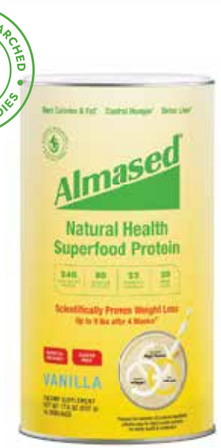
Replace 1-2 daily meals with a delicious an Almased shake. Almased keeps you full, preserves muscle, and burns fat, while giving your liver the break it needs to recover.

Your Liver Will Thank You!
If your patient is overweight, prediabetic, type 2 diabetic or worried about liver health, talk to them about Almased today. For research, diet guide & shake recipes, go to:
almased.com/veterans



The Easiest First Step to a Healthier Liver!

Dr. Eric J. Rosenbaum, M.D. graduated from Yale University and Harvard Medical School where he completed his residency. He has lectured at Harvard Medical School on Fitness and Mortality. He has been board certified in Physical Medicine as well as Functional Medicine and Anti-Aging Medicine.
A sought after speaker, he has been featured on MSNBC, FOX News, and the BBC as well as in national magazines, radio and podcasts. He is in private practice in NY where he specializes in Integrative Sports Medicine and Nutrition.

1 Comprehensive lifestyle intervention vs soy protein-based meal regimen in non-alcoholic steatohepatitis. World journal of gastroenterology vol. 25,9 (2019): 1116-1131.
2 High-Protein, Low-Glycaemic Meal Replacement Improves Physical Health-Related Quality of Life in High-Risk Persons for Metabolic Syndrome—A Subanalysis of the Randomised-Controlled ACOORH Trial. Nutrients, 14(15), 3161.

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Foreword

We're Restoring Public Trust in the CDC

By Robert F. Kennedy, Jr., Secretary of the Department of Health and Human Services

The Centers for Disease Control and Prevention was once the world's most trusted guardian of public health. Its mission — protecting Americans from infectious disease — was clear and noble. But over the decades, bureaucratic inertia, politicized science and mission creep have corroded that purpose and squandered public trust.

That dysfunction produced irrational policy during Covid: cloth masks on toddlers, arbitrary 6-foot distancing, boosters for healthy children, prolonged school closings, economy-crushing lockdowns, and the suppression of low-cost therapeutics in favor of experimental and ineffective drugs. The toll was devastating. America is home to 4.2% of the world's population but suffered 19% of Covid deaths.

This failure was no anomaly. For years the CDC has presided over rising chronic disease — a true modern pandemic — and, since 2014, declining life expectancy. Trust has collapsed: Only one-third of health care workers participated in the 2023-24 fall Covid booster program, and fewer than 10% of children under 12 received boosters in 2024-25.

The American people no longer believe the CDC has their best interests at heart. President Trump has asked me to restore that trust and return the CDC to its core mission.

The CDC began in 1946 as the Communicable Disease Center, tasked with eradicating malaria. Within a year it expanded to all communicable diseases and provided hands-on support to state health departments. In 1951 it founded the Epidemic Intelligence Service — the "disease detectives" who became America's first line of defense against outbreaks.

In 1992 the agency adopted its current name. Unlike agencies created by statute, however, the CDC has grown piecemeal, its mission shaped by appropriations, administrative priorities and special interests. Over the years it mutated from a readiness-and-response force into a sprawling bureaucracy dabbling in nearly every health issue, often duplicating work already done by other agencies of the Health and Human Services Department.

Robert F. Kennedy, Jr., Secretary of the Department of Health and Human Services. Photo courtesy of Congressman Robert Aderholt

Today, only half of the CDC's budget supports its infectious-disease mission. Fewer than 1 in 10 employees are epidemiologists. That drift explains much of the agency's disastrous pandemic response. The Biden administration's restructuring failed to solve the problem. It made a priority of health equity while ignoring the central issue: The CDC has strayed from its core mission.

The CDC also now operates in 63 countries, monitoring biothreats before they reach our shores. Its Biothreat Radar Detection System — an advanced early-detection tool — can spot pathogens like H5N1 or MERS early enough to prevent catastrophe.

We have shown what a focused CDC can achieve. When measles flared this year in Texas, we brought vaccines, therapeutics and resources to the epicenter. The outbreak ended quickly, proving the CDC can act swiftly with precision when guided by science and freed from ideology. That response was neither "pro-vax" nor "antivax." It wasn't distracted by "equity outcomes" or politically correct language like "pregnant people." It was effective. And effectiveness — not politics — will be the watchword of our leadership.

The CDC also now operates in 63 countries, monitoring biothreats before they reach our shores. Its Biothreat Radar Detection System — an advanced early-detection tool — can spot pathogens like H5N1 or MERS early enough to prevent catastrophe.

We know chronic disease made Covid especially lethal in America. Infectious and chronic illness are linked. Tools meant to fight disease — vaccines, antibiotics, therapeutics — can save lives but also trigger adverse events in some patients. That truth must no longer be ignored. While most chronic-disease programs will migrate to the new Administration for a Healthy America, the CDC will bring transparency and research to this critical connection.

The path forward is clear: Restore the CDC's focus on infectious disease, invest in innovation, and rebuild trust through integrity and transparency. To achieve this, the CDC will focus on six priorities:

- Protect from threats. Detect and defeat infectious diseases through enhanced respiratory-disease surveillance and a Biothreat Radar powered by cutting-edge molecular tools.
- Build infrastructure. Strengthen global and domestic systems to predict, track and respond to dangerous exposures and outbreaks.
- Modernize systems. Upgrade data, laboratories and epidemiology to meet 21st-century threats.
- Invest in workforce. Rebuild the proud tradition of disease detectives, training epidemiologists at home and abroad.
- Enhance scientific rigor. Apply gold-standard science to every recommendation, ensuring America leads the world in safe, effective vaccines and trusted guidance.
- Empower states and communities. Return to the original mission of supporting state and local health departments on the front lines of outbreaks.

We have already taken steps to eliminate conflicts of interest and bureaucratic complacency. We have shaken up the Advisory Committee on Immunization Practices. We have replaced leaders who resisted reform. The American people elected President Trump — not entrenched bureaucrats — to set health policy.

That is the MAHA commitment — make America healthy again — in action. Most CDC rank-and-file staff are honest public servants. Under this renewed mission, they can do their jobs as scientists without bowing to politics. The agency will again become the world authority on infectious-disease policy.

Twenty-six Allied nations representatives are gathered around US President Franklin D. Roosevelt on January 1, 1942 to sign the Declaration by United Nations. The representatives pledge their governments to continue fighting together against the Axis powers during World War II. Photo credit © Bettmann/Getty Images, courtesy of the U.S. Embassy in Georgia

First, the CDC must restore public trust — and that restoration has begun. It won't stop until America's public-health institutions again serve the people with transparency, honesty and integrity.

Source: U.S. Department of Health and Human Services

Special Features

Celebrating nearly 30 years of Moffitt Cancer Center's "Mole Patrol" Community Skin Cancer Screening Program

Exclusive interview with Vernon Sondak, MD, Chair of the Department of Cutaneous Oncology at the H. Lee Moffitt Cancer Center and Research Institute in Tampa, Florida

By Thomas Adams III, Publisher of Federal Public Medicine

As one of the most advanced and respected cancer research and treatment centers in our nation, Moffitt Cancer Center is leading the way in advancing understandings of various types of cancers and making a difference in early interventions by going out into communities throughout Florida to provide free screenings to people who might not have otherwise gone in to seek examinations by a qualified healthcare provider.

Moffitt's "Mole Patrol®" is a shining example of dedication for helping people in need, and as it prepares to celebrate its 30th anniversary it was my great privilege to speak with Dr. Sondak and many of team members about the values this program has gained towards both early interventions and research understandings. And with the state of Florida being known as the sunshine state, skin cancer risks are extremely high, which is why this program has been so important to the community, and so successful with helping reach those at risk at the earliest stages possible that makes an enormous difference in their outcomes.

"Moffitt has been doing free skin cancer screenings at public locations around the state of Florida through its Mole Patrol program for nearly 30 years", said Dr. Sondak, "and we do about 16 to 18 of these free screenings per year at all sorts of public venues. Last Saturday [November 22, 2025] was at a road race, and we also do them at air shows, baseball games, football games, and at Clearwater Beach, which is one of our main events, all to raise awareness about skin cancer, and the importance of sun protection along with promoting early detection of skin cancers when they can be treated much more effectively and often more simply than if they're found later on."

I was able to personally visit one of these events at a downtown festival held recently in Inverness, and noticed how positive the atmosphere was and convenient to get a free screening. I was also impressed at how the "Mole Patrol" uses creative connections for reaching people that were already there to enjoy the festivities, who may not have otherwise taken screening serious enough to go their own provider, or for those without a primary care provider or even insurance, but found this an excellent opportunity to take advantage of. This outreach into the community was very much in line with public health campaigns that partner with larger institutions and raise awareness within the community for all types of health initiatives, so I asked Dr. Sondak more about Moffitt's connection with public health.

Vernon Sondak, MD, Chair of Cutaneous Oncology at the H. Lee Moffitt Cancer Center and Research Institute, Tampa, Florida. Courtesy photo

"Because Moffitt is a certified NCI Comprehensive Cancer Center, it is our obligation to address the public health needs very specifically of the population that we serve," he stated, "and obviously, Florida is an area with a very high prevalence of skin cancer. We are actually the number two state in the nation for the number of cases of melanoma, second only to California. With almost as many cases, even though Florida has only about half the population of California, we clearly have a high rate of skin cancers. We have a lot of patients who are affected by it and so the Mole Patrol is part of the institutional public health outreach. We don't necessarily interface directly with the public health organizations in the county or region, but the Moffitt outreach program component of the cancer center really looks at where all the underserved areas are and their needs. The Mole Patrol event in Inverness came about from our cancer center's outreach team identifying this collaboration and finding the opportunity for not just us, but other parts of the cancer center to do free cancer screening. We recognize that skin cancer is a big factor in Florida, as it is in many other parts of the United States, and as a cancer center we take that very seriously as our obligation to seek out opportunities to partner with people and get that message out."

Moffitt's Mole Patrol bus at a community festival in November 2025, downtown Inverness, Florida. Courtesy photo

This is something else I noticed about the Mole Patrol screening events, that they often have other types of cancer screenings available including head and neck, as well as lung cancer screenings. This was a great example of the creativity organizers use when arranging their events, because the chances of people taking part in multiple screening while they are there already is very high, which provides an even greater ability for early detection among the most common types of cancers.

"The head and neck and lung cancer screenings are coordinated through Moffitt's cancer center office for outreach", Dr. Sondak stated, "Our team coordinates the skin cancer screenings and they coordinate the other screening programs, and alert us as to where there's an opportunity. Out of anywhere from 16 to 18 Mole Patrol events held, nearly half a dozen of them involve at least one other type of cancer screaming team. Head and neck screening is very common because, like skin cancer, it is also a big problem that early intervention is critical for, and it's something that you can easily screen for at the same time we screen for skin cancers. For lung cancer screenings, we need the bus with its equipment and resources for CT screening in a mobile unit, similar to breast cancer screenings and some of the other kinds of cancers that are not so easy to perform out in public," he stated, "but we have an ability to raise awareness about all different kinds of screening, so about one third of our screenings each year involved at least one other Moffitt team screening for other forms of cancer."

This led me to ask Dr. Sondak how Mole Patrol has provided additional information about not only skin cancer early detection, but also how to reach people at risk and what they have learned regarding this over the past 30 years.

"Our primary goal is education and early detection, so anything we can do to raise awareness that we think is going to be helpful. We have also tried to learn from studying our experiences at the Mole Patrol", he said. "We have published some reports because a venue like this provides access to real world populations that might even be from other countries visiting Florida, who might have no insurance or healthcare on a regular basis, and we often get to approach people who are out in the sun a lot for their jobs to learn more. When we're at the beach, we can screen lifeguards and police officers patrolling the beach, and we always impressed at how much sun exposure they're getting and how we can try to help them prevent the damaging effects of the sun, so it is a research opportunity. We have done some studies and publications over the years about our efforts. It's not the primary goal of course, but it's just one of the many sort of collateral benefits of the effort."

It certainly makes good sense to learn from these screenings as much as it does to perform them, and over the past 30 years Moffitt has taken great advantage of this opportunity. I asked Dr. Sondak to expand upon this regarding the gains he has personally seen as a result.

"The first thing we always like to emphasize is that we've seen dramatic progress in the treatment of melanoma and other skin cancers in the last decade," he said, "even very advanced cases can now be treated and often with an expectation of survival that is encouraging us to say that they are being cured. Even very advanced widespread cases. And the life expectancy for the average patient with advanced melanoma has increased dramatically, but none of this changes the fact that if you can catch this disease early, when it's right there on the skin for everybody to see, if you can spot it early, you don't need all those expensive complicated and sometimes toxic treatments. You can take care of this with some local anesthesia in the doctor's office with an extremely high chance of cure. So we want the message to be a positive one, that we're making progress, but still this is a cancer that in almost every case is just right there, on the skin for somebody to see if only they know what to look for."

Another opportunity Mole Patrol offers is understanding the knowledge individuals in their communities have about risk factors, and ways to prevent disease.

"Our experiences allow us to learn what kind of message gets through," he Dr. Sondak stated, "because the best way to minimize the problems that we have with skin cancer is to avoid it entirely and prevent it from occurring by being careful about sun exposure. And most of the ultraviolet exposure we get in our lifetime is when we're young, so targeting the message toward young people who are often hard to reach with a cancer prevention message is very important. We've learned from lung cancer and other kinds of conditions that it's not always easy to get

through to teenagers and young adults about the risks of their current behavior, when those risks are years in the future. So there's a lot of research on what's the best way to get that message across, and that's something we continue to work on."

The two biggest challenges for providing reliable screenings to those at risk is having people volunteer, and having trained professionals available to perform the examinations. Mole Patrol offers extremely qualified personnel to meet both of these, especially for underserved communities which may otherwise not have access to such important services.

I asked Dr. Sondak about their ability to have qualified professionals properly identify areas of concern, and what else could be done in the event a primary care or nursing professional may be the frontline caregiver to help a patient with suspicious lesions.

"The first message we have — and we emphasize to all of our new people who want to join the Mole Patrol and attend our training class about what to look for — is, it's not your job to tell exactly what the spot is or make an exact diagnosis", he said. "Your job as a screener is to 'spot the spot,' that is find the problem area or identify the 'ugly duckling' if you will, the mole that stands out and doesn't look like it belongs there. Just identify the problem area and then get that person to somebody else who can evaluate it with more technological sophistication or more clinical sophistication, or just do a biopsy because it doesn't really take much technology to say that doesn't belong, let's just cut it out and send it to the pathologist who can figure out which things are really bad. It's actually one of the criticisms of widespread skin cancer screening, that sometimes you biopsy something and it isn't cancer. That can be perceived as a negative about screening, but we don't really think about that as a very big negative. Of course we'd like to be perfect and only removed things that are cancerous and never remove something that's benign", he stated, "but you cannot tell, not even the most experienced expert dermatologist can always tell if something is cancerous or not, you have to biopsy things to find out. Now of course at a place like Moffitt, we're very interested in non-invasive technologies. Whether it's looking with different kinds of magnification like confocal microscopy that lets us look under the layers of the skin, or genetic testing, or other different ways we are exploring", he said, "still right now today the best, simplest, safest, and lowest cost approach is that if you see something suspicious and you're not sure what it is, just do a biopsy or send the patient to someone who can."

Visual exam being performed during a Mole Patrol event held in Inverness Florida by Nikhil Khushalani, MD, Vice Chair for the Department of Cutaneous Oncology at Moffitt Cancer Center. Courtesy photo.

While biopsy is generally safe for most individuals, there are certain circumstances that could make them risky including bleeding disorders like hemophilia or anticoagulant use including blood thinners, as well as active infections or allergies to local anesthetics. This is where new advanced technologies such as like confocal microscopy can be extremely helpful, without introducing complications.

Skin cancer education materials have also been updated in recent times to help reflect more diverse skin tones, which can obviously make visual examinations more difficult to identify possible cancer. This is another example of how technology can be an essential tool in providing the healthcare professional with greater abilities to see more detail than even the most trained expert can see with the naked eye.

"The first thing we talk about when it comes to skin color differences in patient populations or groups of people is that there's a huge knowledge void", Dr. Sondak stated, "and you can't screen somebody or diagnose their cancer unless they noticed something first and come in because they are worried about it. We see over and over again that darker skinned people have a tendency not to be as concerned, thinking this isn't a problem for me as much as it is for really fair skinned people. Or 'I can't get skin cancer'", he stated, "Whether it's Hispanic, African-American, or just a darkly pigmented Southern European heritage, getting the message across that everybody can get skin cancer, no one is immune. The patterns may be a little different, but there are still major deficits in that knowledge, because it doesn't matter what technology we have, if somebody doesn't come in and say 'hey, what do you think of this spot on my foot?' We can't do anything about it. That is a really big challenge, but if we can just get people in the door, then we can evaluate them. And many times we can reassure people, we can say this isn't something that you have to worry about now, this is something you can keep an eye on and this is what you should be looking for, if you see this kind of a change. We don't want to overlook the fact that even though our goal is to find cancers, a big byproduct of not finding cancer in a given person is reassuring them," he stated, "as long as we are giving accurate reassurance that's a big plus, and we are also educating them about what to expect in the future."

Photos courtesy of the H. Lee Moffitt Cancer Center and Research Institute in Tampa, Florida

This is exactly what Mole Patrol does as it reaches out to the communities that have the same situations Dr. Sondak explained, reaching out to people that otherwise may not have any concern or even recognize a difference in their skin that could possibly be cancer.

"And we have to acknowledge that sometimes the medical profession hasn't always been as aware of the different kinds of problems, including the kinds of cancers people get when their skin tones are diverse and not just your average white skinned individual," he stated, "so we have work to do on the medical side as well as the population side to get the message out."

Getting this important message out to those who need it can be extremely challenging. As with other types of screenings, such as sexually transmitted infections, one of the biggest barriers can be getting people to come in because of embarrassment or even lack of trust among the system.

This has been the case with both men and women regarding syphilis screening, even though it is especially crucial for pregnant women to get tested as early on in their pregnancy as possible to avoid congenital syphilis complications and death to their unborn child. This is why most states are now mandating screening for this case, but trying to find ways of reaching these people and overcoming the barriers remains very challenging. One creative idea is introducing STI screening as a secondary test to other screenings such as breast and cervical cancer screenings. This allows the patient to avoid embarrassment.

Moffitt's community screenings often include several screenings now such as head and neck, as well as lung cancer screenings. This makes it much easier to attract people at risk to get screened for multiple types of cancer, while they are already there and getting screened for one thing they can also receive another. This convenience factor has definitely boosted participation and made a huge difference it helping people catch cancers early where it can make all the difference.

Moffitt has truly made huge differences in so many people's lives over the past 30 years, and it all comes down to the devotion of the professionals serving within their system. I asked Dr. Sondak about his background and what led him to serve in the area he is today.

"I wanted to be a cancer surgeon," he said, "ever since my first year in medical school when I met the chief of cancer surgery at my medical school, Dr. Peter Mozden at Boston University School Medicine, and was just inspired by him. It was his mannerisms and approach to treating patients, even patients that we couldn't help back in that day, in the 1970s. When I was in medical school, a lot of patients with melanoma and other skin cancers really didn't have a lot of options for treatment. The challenge was, how do we manage them, how do we take care of them? How do we ease their symptoms and prevent the problems we could prevent? It was a big, big challenge in those days and I was really impressed with how he was able to handle them. That motivated me to go on to the career that I've had. And I was certainly attracted to melanoma and other skin cancer because of some of the same things we've been talking about, how they are on the skin for everybody to see, but if we miss catching them early, they can spread so widely and be so difficult to treat. And yet there was progress to be made, and the pace of the progress is far beyond anything I ever expected to see in my career, so I've been really gratified with everything we've been able to accomplish for our patients over the years."

Special Features

Advancement in Healing Diabetic Foot Ulcers

A case report by Dr. Mark Dreyer, DPM board-certified in wound management and podiatry surgery

By Thomas Adams III, Publisher of Federal Public Medicine

Mark Dreyer, DPM, United States Navy Veteran and former Military Podiatrist currently serving as a wound specialist at Intercoastal Medical Group in Lakewood Ranch, FL

As a former United States Navy officer trained in the restoration of lower limb health, Dr. Mark Dreyer, DPM was provided access to the most advanced emerging wound care therapies available. And while many have significantly improved positive outcomes, the challenge remains to stay ahead of infection because this dramatically increases amputation risk.

Recently, however, Dr. Dreyer experienced unique standout results with a high-risk patient from his use of a unique new therapy that initiates and accelerates the body's own healing process. It is exceptionally effective for treating highly challenging wounds, including the threatening foot wounds associated with diabetes.

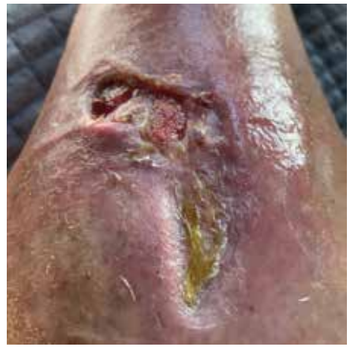
This involved a 68-year-old diabetic woman with a chronic wound on her right shin who became Dr. Dreyer's patient when her wound was approximately 6 months old and now caused her constant severe pain that highly limited her mobility. Prior to seeing Dr. Dreyer, she sought care at an urgent care facility that prescribed formal wound care, including the use of a Wound Vac pump to remove edematous fluid and debris, to promote circulation and closure. This treatment included numerous antibiotics, and she could not bathe or shower after each procedure. After approximately 2 months, the treatment showed no success and her pain level had become intolerable, and her wound care specialist recommended amputation. Before the surgery was performed however, an unrelated cardiac event took place that delayed the procedure. So her wound care treatments continued, with the same lack of success.

At that point the patient heard about Dr. Dreyer and his outstanding experiences with lower limb health and wound care, and decided to seek his care. Upon becoming her doctor in December 2023, Dr. Dreyer discontinued the Wound Vac procedures and initially treated her wounds with skin grafts, hyperbaric oxygen, and collagen dressings derived from placental skin. Only minimal improvements were noted, and after approximately one year Dr. Dreyer concluded that all options had been exhausted. But then he received a new topical product that promised to stimulate the body's effective healing processes regardless how serious the wound is. Dr. Dreyer contacted his patient and encouraged her to try it under his care.

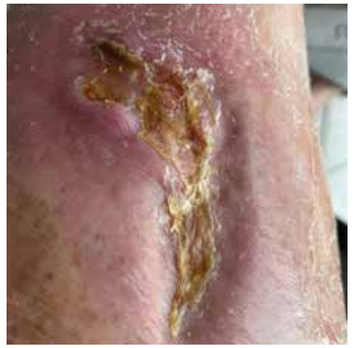
The product, called "Crescel," is a topical cream applied directly to the wound twice daily. "The first thing I noticed was — no pain!" The patient exclaimed. "I could touch my skin again!" The unbearable sensitivity of the skin surrounding the wound had disappeared, and the wound itself began closing. There was not a single negative side effect. Treatment with Crescel also allowed the patient to bathe, and before long she was able to resume the activities she relished. Her homebound life was now in the past.

"More physicians need to be made aware of Crescel very quickly. Having an easy-to-use product with these healing capabilities, and without negative side effects, is a huge advancement for us to have in our toolkit. And broader reimbursement coverage for this product is essential for us to get more patients access to it."

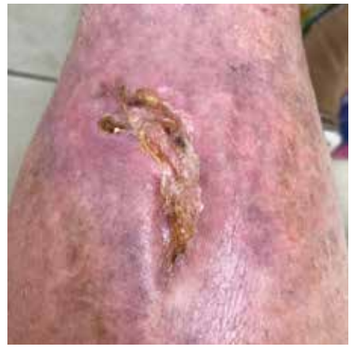
— Mark Dreyer, DPM



12/17/24 Before beginning treatment with Crescel.



2/22/25 After 6 weeks of treatment.



4/16/25 After more than 3 months of treatment with Crescel.

Crescel's unique microemulsion technology enables delivery of a proprietary combination of botanical ingredients (a spectrum of extracts from aloe barbadensis and oat kernel, i.e., avena sativa, oil) deep into the skin for continuous anti-inflammatory and moisturization activity. Although these botanicals have been widely recognized for their anti-inflammatory and healing properties, Crescel's proprietary formula elevates these benefits to a new level of efficacy. The technology is designed to preserve their biological activities when they are combined, and produce novel synergistic activity. Additionally, Crescel maintains the physiological pH of the skin and is thus unbuffered, and it incorporates hydrophilic and hydrophobic components as do the skin cells and mitochondria.

Dr. Dreyer is board certified in wound management, podiatry and foot and ankle surgery. He was an ACFAS Fellow for Reconstruction and Limb Salvage. Healing challenging wounds is one of his long-standing passions. His focused preparation for cutting-edge expertise in treating challenging wounds began with his 3-year surgical residency and continued with a fellowship in advanced wound healing. Before moving to private practice, Dr. Dreyer was a Navy officer who brought his rare combination of skills in restoring lower limb health to help military members and their families in New England. He was also affiliated with a teaching hospital there and, in addition, worked at Newport Hospital's Vanderbilt Wound Care Center.

Additional case results involving United States Veterans

John Cherry, a 66-year-old U.S. Air Force Veteran diagnosed with diabetes approximately 15 years ago, began experiencing peripheral neuropathy about 4 months prior to beginning treatment with Crescel. "I felt like I was walking on a pillow," Mr. Cherry says. "I also developed restless leg syndrome prior to beginning the treatment. Then after about a month of using Crescel, all of those symptoms disappeared."

Mr. Cherry has been using Crescel for approximately 7 months for treating his feet, and now includes a burn wound that he experienced on his forearm. He applied the cream to this wound immediately following the injury, and noticed that healing began right away. "I didn't even develop a blister," he comments. Mr. Cherry also experienced injury wounds recently, when he punctured his wrist and left side, and after thoroughly washing the wound area he immediately applied Crescel. No infection developed and the wound did not worsen. Instead, healing began immediately. "I had no negative side effects," he reports, "only improvement — both with healing my wounds, and improving my neuropathy."

Mr. Cherry shared his positive experiences with a friend, Mr. Chuck Taylor, an 80-year-old veteran living with prostate cancer and side effects from treatment that included a skin disorder and the loss of pubic hair. Mr. Taylor decided to try Crescel. Again, the results were outstanding. "I was so surprised to see that everything cleared up, just like it was before I had cancer," he states, "and so were my primary care and cancer doctors!" Mr. Taylor was originally treated at the VA, and was eventually referred to a comprehensive care center in Las Vegas where he continues receiving treatment for his prostate cancer. "I was so impressed with Crescel," he says, "that I let my daughter and granddaughter both try it for redness and blemishes on their faces and they both had incredible results. I could never have imagined that a product could do so well, and for so many things."

Special Features

Supporting Liver Health and Cancer Prevention for Native Americans and Alaska Natives

Exclusive interview with Matthew A. Clark, MD, FACP, FAAP, Indian Health Service Deputy Chief Medical Officer and Chief Medical Officer of the Alaska Area Native Health Service, and Chair of the IHS National Pharmacy and Therapeutics Committee

By Thomas Adams III, Publisher of Federal Public Medicine

Liver health is a top priority for Indian Health Service. Currently rates among American Indian and Alaska Native communities is the highest of all U.S. population segments, and in response IHS has announced the launch it's national "Chronic Liver Disease Initiative, and Hepatitis C Elimination Pilot Program". This addresses root causes and provides practitioners with comprehensive education and resources to change the course of this epidemic in current and future generations.

Dr. Matthew Clark, IHS Deputy Chief Medical Officer has managed liver disease alongside clinical and public health professionals throughout his career serving at IHS, also assisting with clinical strategies that continue developing alongside new technologies. I asked him to expand upon some of the key points professionals need to know, and how his experience has helped to support this understanding.

"I'm an internist and a pediatrician by training," Dr. Clark states, "and I've spent almost my entire professional career with IHS. I'm going on 25 years now, and most of that time I have served as a primary care provider and a clinical administrator at local federal IHS facilities in the Four Corners region. I also have served for the last six years as the Alaska Area Native Health Service chief medical officer, and have served for roughly that same period of time as the Chairperson for the IHS National Pharmacy and Therapeutics Committee, which is responsible for formulary management for the agency."

Matthew Clark, MD, FACP, FAAP, IHS Deputy Chief Medical Officer and Chief Medical Officer Alaska Area Office. Photo courtesy of Indian Health Service. Photo credit Alaska Community Health Aide Program

Our most recent initiative announced by Dr. Christensen in October 2025 is our chronic liver disease initiative that is part of a broader group of our IHS national clinical strategic initiatives that date back to 2019," he stated, "which is our first contemporary national clinical strategic initiative focused on a chronic liver disease with the goal of mitigating the impact in terms of morbidity and mortality in indigenous communities in the United States. Not only is chronic liver disease among the top 10 leading causes of death in the US generally, but it also represents a major health disparity that results in premature death among American Indian Alaska Native people."

CDC data shows that chronic liver disease is the second leading cause of death for non-Hispanic, American Indian and Alaska Natives between the ages of 25 and 54 years. "We identified that this is a major health disparity that required a more concentrated effort to reduce and mitigate those adverse consequences of chronic liver disease in tribal communities," Dr. Clark explains, "That was the basis for the national chronic liver disease initiative that was announced in October of last year. Essentially, we're advocating a comprehensive strategy that is inclusive of education, prevention, screening, early detection, diagnosis, and treatment of not only chronic liver disease, but those conditions and lifestyle factors that contribute to it. We are very much aligned with CDC recommendations for things like universal hepatitis B and hepatitis C screening in persons ages 18 years an older and during every pregnancy, and also universal alcohol use screening as part of our provision of comprehensive care."

"Another general category of screening is risk-based for those who present with risk factors, which supports a comprehensive multidisciplinary approach." Dr. Clark explained, "This includes not only our provider medical staff, but also pharmacy, nursing, care management and referral care staff, IT staff and others that serve and support patients in the community like our community health workers and public health nurses. Through this multidisciplinary and comprehensive approach we are hoping to reduce this health disparity in tribal communities, specifically through early detection and early diagnosis and treatment, but

also through prevention as well. We have focused on a few major causes of chronic liver disease including alcoholic liver disease, viral hepatitis including hepatitis B and C infection, Metabolic dysfunction-associated steatohepatitis also known as nonalcoholic fatty liver disease, as well as cirrhosis and liver cancer." He stated, "These are the main areas of focus for this initiative. The initiative and associated materials can be found on the IHS National Pharmacy and Therapeutics Committee website."

I asked Dr. Clark more about the screening efforts, and what types of screening are most effective for the different types of liver disease. He explained, "Going back to the concept of universal versus risk based screenings; for a very long time IHS has implemented universal alcohol use screening as part of our comprehensive services and it's included certainly in our primary care clinics and other care settings, and we know that alcoholic liver disease is one of the leading causes of chronic liver disease in our patient population and more generally as well. Alcohol screening includes asking a series of questions that are intended to identify problematic use in terms of frequency and or quantity that can be harmful to the liver, and then to provide appropriate counseling regarding reducing that risk by reducing alcohol intake. We also support universal screening for viral hepatitis, including hepatitis B and hepatitis C. The CDC's recommendation is for universal hepatitis B and hepatitis C screening at least one time for all persons ages 18 and older, and then for all pregnant persons during every pregnancy. I would really put a special focus on hepatitis C screening, because we have for many years now, almost a decade, had very effective medications for essentially curing chronic hepatitis C infection, which is really a game changer for tribal communities in terms of the risk posed by infection, including the risk of developing cirrhosis, the risk of liver cancer and the risk of premature death, so to have hepatitis C screening is absolutely critical because there's a highly effective treatment. Regarding risk based screenings, one of the most important issues is to screen patients who have known chronic liver disease for evidence of cirrhosis, and there are variety of ways that this can be done including through serum blood testing, or through various types of imaging examinations, probably the simplest of which is known as ultrasound based Transient Elastography also called TE, and there are a variety of different devices that can be used for this purpose but all are basically designed to evaluate for cirrhosis using an ultrasound technique. Another important screening, especially in our population is for non-alcoholic fatty liver disease, or what is now called Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD). The key here is screening patients with risk factors such as obesity, diabetes, and elevated lipid levels. The types of screenings that we are implementing in IHS support a strategy focused on early detection, early diagnosis, and treatment to mitigate mobility and mortality."

Courtesy of the U.S. Centers for Disease Control and Prevention

With so many of the tribal community living in remote rural areas, IHS also contains a mobile aspect of testing, going to the patient rather than having them come into a hospital or clinic. I asked Dr. Clark to expand upon this and how screening techniques may be different in comparison.

"That is a very pertinent part of the services we provide in tribal communities," he said, "so let me just provide a little bit of background on that. The majority of tribal communities are located in rural and remote locations, but we also have patients living in urban centers where there is better access to higher levels of care including large hospitals. Most of the healthcare services delivered by the I/T/U system are in ambulatory clinics rather than hospitals, and so while we do deal with the challenges of the rural and remote nature of providing healthcare to tribal communities, it also comes with something of an advantage because our federal and tribally operated programs are often times co-located with those tribal communities, meaning that access often times is available within the community itself. Another thing is, when we're talking about the various types of screenings for things like alcoholic liver disease and non-alcoholic fatty liver disease, and viral hepatitis, is that it really doesn't require the big equipment for effective screenings. For example, in the case of alcoholic liver disease the screening is verbal, asking questions of the patient, and in the case of viral hepatitis it is with a blood tests. And in the case of non-alcoholic fatty liver disease, very commonly those are also blood tests, even the higher order testing for things like cirrhosis can be done through imaging techniques like TE that can be performed in ambulatory clinics, provided that the equipment is available. I would say that most, if not all of the screening for chronic liver disease can be done in the ambulatory setting in those rural and remote locations. There are still people who are located some distance from their nearest healthcare facility, so when you think about places like Alaska where you have rural and remote villages that are off the road system and often times very isolated, or places like the Navajo reservation which is very large and there's considerable distance between where someone may live and where they receive their healthcare, we do have a system that includes a community public health component, so we have workers that go out and make home visits including community health representatives. One program has public health registered nurses who do this work in the community and through home visitation. I spent many years as a primary care doctor working in rural tribal communities, accompanying a public health nurse for patients who are homebound or have mobility problems, or were otherwise not easily able to access care, and we do try to use some innovative strategies to increase access for patients in those situations whether it be having a provider go out with the public health nurse or community health worker to do an assessment including sometimes a lab draw, or whether it be a community health representative assisting an elder or a disabled person with transportation to get into the clinic for testing and for treatment, so there are some innovative strategies in IHS that are designed to address those challenges."

Many patients living in remote areas receive in-home care. Photo courtesy of Indian Health Service

This challenge of providing care to those in rural communities or with disabilities has always been a priority for reaching the people who really need the help, and sometimes that's the biggest challenge to overcome. This is an essential part of IHS' strategy as Dr. Clark explained, and also the introduction of combined screenings for different types of diseases. I asked more about how this was being address by their initiative.

"When we talk about cancer screening, Dr. Clark explained, "there are literally dozens if not hundreds of types of cancer, so we screen for the ones that are the most common, for which there are specific screening guidelines. These include breast cancer, colon cancer, lung cancer, liver cancer, and prostate cancer. The best screening for breast cancer is a mammogram which requires a radiology unit, and there are mobile mammography units that can be used. Typically the way those work is by going out into a community and setting up so people will come into the mobile mammography unit, and that's commonly co-located with an ambulatory clinic. For instance, you may have a rural or remote community that has an ambulatory clinic, but they don't have mammography capacity, so they'll arrange for a mobile mammography unit to come out from time to time to set up in their parking lot or somewhere nearby so that people can access their mammogram screening while also accessing their other healthcare at the adjacent ambulatory clinic. Then colon cancer is the other big one that we talk about in terms of screening, and there are two general categories. There's colonoscopy or sigmoidoscopy, which is an invasive exam that can be performed in an operative

Photo courtesy of Indian Health Service

suite at a regional facility, but typically they're done either in a gastroenterology or general surgery office same-day surgery center, or hospital facility. There are some larger ambulatory clinics that have family practice physicians who are trained and have the capability, equipment, and facilities to do those types of colon cancer screens. However, there are other strategies for colon cancer screening like CT colonography (virtual colonoscopy) that can be done in any facility that has a CAT scanner, but again those would be at some of our larger facilities. And then there's stool based testing, which can be undertaken at the ambulatory clinic or you can just have it sent to your residence where the patient can collect the sample themselves and send it back in a prepackaged return envelope. And some of those screening techniques can be very effective at detecting colon cancer. For lung cancer screening, generally you're talking about people who have a history of smoking where a CAT scan is most commonly used, so again larger facilities are where you commonly find that equipment. But when we talk about liver cancer screening, whether imaging either with ultrasound or CT, typically those things would be done either in a facility with that specific diagnostic imaging capacity, which some of ours do. So in terms of bundling cancer screenings, because of the complexities of how the different types of screenings are done, it really depends on the type of facility that you have access to. Regardless, we promote routine cancer screening for all of our patient population through the most effective means, even if we need to refer them outside of our system for that screening, such as to a regional referral facility or a small hospital near a reservation community.

Combining screenings for related diseases is obviously an effective way of leveraging patient participation while they are already there.

"Essentially this is bundling services to address challenges with accessing care," Dr. Clark explained, "and that's something that IHS has long striven to do through various innovative strategies. There are the social drivers of health that we deal with, especially in tribal communities, such as transportation, poverty, and access to care. There's a long list of social drivers of health that impact whether or not people seek care, and part of our challenge is trying to overcome those barriers and to enhance access.

I asked Dr. Clark to speak more about the IHS hepatitis C elimination project, which is a component of the chronic liver disease initiative, because it has been so successful with it's applications.

"In fact, we have seen substantive improvements in rates of treatment for hep C," he stated, "with using new highly effective antiviral medications or direct acting antivirals as they're called. We added direct acting antivirals to the IHS national core formulary in 2018, which means that all federal direct care facilities and participating tribal facilities have to make those medications available to eligible patients when clinically indicated. After adding those direct acting antivirals to the national core formulary in 2018, we saw near doubling in rates of effective treatment for hepatitis C infection. The rates are still far below where we'd like them, which would be approaching 90 to 100 percent, but there are other challenges such as the social drivers of health to be considered. One of the hallmark features of the chronic liver disease initiative is early detection through screening, diagnosis, and effective treatment for hepatitis C infection, because it's probably one of the most effective strategies for reducing chronic liver disease and liver cancer in tribal communities. And so as part of the chronic liver disease initiative is that we have the hepatitis C elimination pilot program, as well as the pilot community development project that's associated with it where we are seeking to cross pollinate best practices across the IHS system of care."

Jay Bhattacharya Begins Tenure as 18th Director of the National Institutes of Health

18th Director of the National Institutes of Health, Jayanta Bhattacharya, MD, PhD. Photo courtesy of the National Institutes of Health

Jayanta "Jay" Bhattacharya, MD, PhD, was sworn in today as the 18th Director of the National Institutes of Health (NIH). President Trump nominated Dr. Bhattacharya for the position on Nov. 26, 2024, and he was confirmed by the U.S. Senate on March 25, 2025.

As Director, Dr. Bhattacharya will oversee the nation's medical research agency. Under his leadership, Director Bhattacharya will play an instrumental role in shaping the agency's activities and outlook and ensuring they are in alignment with the President's Make America Healthy Again Commission.

"Under Dr. Bhattacharya's leadership, NIH will restore its commitment to gold-standard science," said HHS Secretary Robert F. Kennedy, Jr. "I'm excited to work with Dr. Bhattacharya to ensure NIH research aligns with our Administration's priorities — especially tackling the chronic disease epidemic and helping to Make America Healthy Again."

"Chronic diseases such as cancer, heart disease, diabetes and obesity continue to cause poor health outcomes in every community across the U.S. Novel biomedical discoveries that enhance health and lengthen life are more vital than ever to our country's future," said Dr. Bhattacharya. "As NIH Director, I will build on the agency's long and illustrious history of supporting breakthroughs in biology and medicine by fostering gold-standard research and innovation to address the chronic disease crisis."

A renowned physician and health economist, Dr. Bhattacharya has previously held numerous appointments at Stanford University in California. As a professor of medicine and economics, Dr. Bhattacharya studied population aging and chronic disease as well as the effects of government policies and programs on health. Recently, he has studied the epidemiology of COVID-19 and the negative impacts of the Biden-era public health response and pandemic policies.

Encouraging different perspectives, especially from early-career researchers, will be central to Dr. Bhattacharya's approach to leading NIH and part of his larger mission to restore public trust in science. Alongside Secretary Kennedy, he will champion innovative, cutting-edge research that fuels near-term solutions for patients while balancing investments in basic science.

Dr. Bhattacharya held fellowships at the Stanford Institute for Economic Policy Research, the Stanford Freeman Spogli Institute and Stanford's Hoover Institute and was a professor in Stanford's Department of Health and Research Policy. Previously, he conducted research at the National Bureau of Economic Research and the SPHERE Institute, a policy research firm. Before joining Stanford, he worked as an economist at the RAND Corporation where he co-invented a patented system that calculates optimal flexible savings account contributions based on health needs and comparative cost information for health insurance plans.

Director Bhattacharya earned his bachelor's and master's degrees in economics from Stanford University. He then completed medical school and earned a PhD in economics, both at Stanford. He replaces Matthew J. Memoli, MD, who has served as the acting director of NIH since Jan. 22, 2025.

Source: The National Institutes of Health

SAMHSA Awards More Than $45 Million in Supplemental Funding to Support Young Adult Sober Housing Services

The Substance Abuse and Mental Health Services Administration (SAMHSA), a division within the U.S. Department of Health and Human Services (HHS), announced it has awarded more than $45 million in new supplemental funding to State Opioid Response (SOR) program recipients to focus on sober or recovery housing among young adults. This investment advances President Trump's Executive Order, Ending Crime and Disorder on America's Streets, by providing sober housing and recovery support services, which are critical to combatting our Nation's challenge of homelessness, addiction, and illness.

"President Trump has elevated this issue as a key public health and public safety priority," said HHS Secretary Robert F. Kennedy, Jr. "All too often, young adults with opioid or stimulant use disorders lack safe housing to support their recovery. This funding can make a life-changing difference for young people working toward long-term recovery."

"Firsthand experience has shown me that wraparound services, especially sober housing, play a vital role in breaking the cycle of addiction," said SAMHSA Principal Deputy Assistant Secretary Dr. Art Kleinschmidt. "This supplemental funding will help expand that lifesaving care and help people pursue a fulfilling life in recovery."

Sober housing for those in early recovery is a safe and supportive alcohol- and drug-free residence where people can live, build stability and work toward independence. This therapeutic

Photo courtesy of the Substance Abuse and Mental Health Services Administration

Graphic courtesy of the Substance Abuse and Mental Health Services Administration

model allows people to actualize their hopes and dreams to live a fulfilling and self-directed life.

"Homelessness does not exist in a silo — it is often closely linked to untreated root causes including addiction or mental illness," said U.S. Department of Housing and Urban Development Secretary Scott Turner. "At HUD, we are committed to President Trump's vision to end crime and disorder on America's streets through targeted funding and critical collaborations, so all Americans have the opportunity for recovery and self-sufficiency. This action from SAMHSA under the leadership of Secretary Kennedy builds on our shared goal of helping vulnerable Americans end the cycle of homelessness and addiction."

This one-year supplemental funding requires grant recipients to develop and/or expand recovery housing services for young adults who have opioid or stimulant use disorders. States and territories are also able to provide treatment, including family-based treatment; provide dedicated care coordinators to assist in navigating various service sectors; and provide individuals with a range of recovery support services—such as coaching, vocational training, employment support, transportation, childcare, and more.

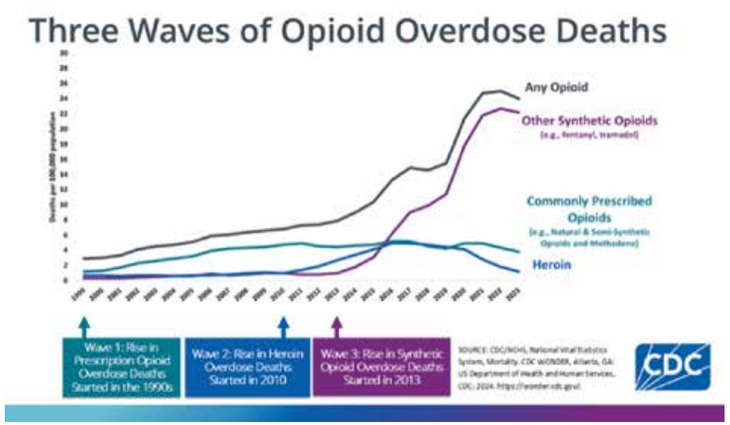
Source: The U.S. Department of Health and Human Services.

Secretary Kennedy Renews Public Health Emergency Declaration to Address National Opioid Crisis

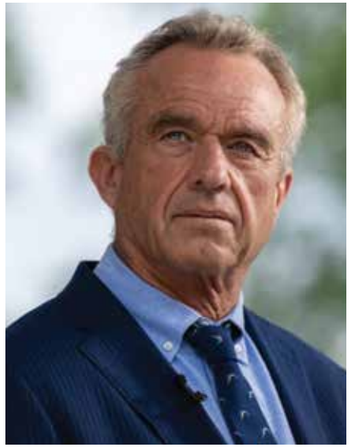
The U.S. Department of Health and Human Services (HHS) announced today that Secretary Robert F. Kennedy, Jr. renewed the public health emergency declaration addressing our nation's opioid crisis, which will allow sustained federal coordination efforts and preserve key flexibilities that enable HHS to continue leveraging expanded authorities to conduct certain activities in response to the opioid overdose crisis.

"Although overdose deaths are starting to decline, opioid-involved overdoses remain the leading cause of drug-related fatalities," HHS Secretary Kennedy said. "This Administration is going to treat this urgent crisis in American health as the national security emergency that it is. Renewing the Opioid Public Health Emergency Declaration affirms the Administration's commitment to addressing the opioid overdose crisis and is one of many critical steps we will take to Make America Healthy Again.

"The public health emergency, first declared under President Trump's leadership in 2017, was set to expire on March 21, 2025. Today's renewal extends the emergency for 90 days. The declaration of a public health emergency provides the Secretary with certain authorities necessary to respond to the emergency. The Department has relied on this declaration to facilitate voluntary information collections, expedite demonstration projects related to substance use disorder treatment, and expedite support for research on opioid use disorder treatments. These activities facilitate multi-level coordination across the public and private sector alike, which ultimately, will continue to save lives.



Graphic courtesy of the U.S. Centers for Disease Control and Prevention



Robert F. Kennedy, Jr., 26th Secretary of the U.S. Department of Health and Human Services. Photo courtesy of the U.S. Department of Health and Human Services

While provisional data from the Centers for Disease Control and Prevention (CDC) indicates a 25.5% decrease in overdose deaths in the 12 months ending October 2024 compared with the same period in 2023, approximately 150 Americans die every day from overdose involving illegal, synthetic opioids such as illegally made fentanyl. Overdose remains the leading cause of death among Americans aged 18-44. The Administration and HHS remain committed to preventing substance use initiation, reducing the number of lives lost to overdose, and helping Americans to overcome substance use disorders, achieve recovery, and live healthy lives.

Source: U.S. Department of Health and Human Services

HHS Provides More Than $1.5 Billion in State and Tribal Opioid Response Grants

The U.S. Department of Health and Human Services (HHS), through the Substance Abuse and Mental Health Services Administration (SAMHSA), today allocated more than $1.5 billion in FY25 continuation funding awards for the State Opioid Response (SOR) and Tribal Opioid Response (TOR) grants. This funding provides critical resources to states and Tribal communities to address the overdose crisis through prevention, opioid overdose reversal medications, treatment (including medications for opioid use disorder, or MOUD), and recovery support.

"America's addiction and overdose crises are tearing apart families and communities, and meeting this challenge requires honesty, courage, and bold action," said HHS Secretary Robert F. Kennedy Jr. "We are putting power back in the hands of states and Tribes to build solutions that reflect their people and their traditions. This investment is about saving lives, restoring hope, and making our communities whole again."

Help is available for those struggling or in crisis. Call or text 988 or chat at 988lifeline.org. To locate a treatment facility or provider, visit FindTreatment.gov

Arthur Kleinschmidt, PhD, MBA. Photo courtesy of the Substance Abuse and Mental Health Services Administration.

"With the rise of polysubstance abuse and increasing role of stimulants in overdose deaths, it has never been more important to comprehensively address the disease of addiction and the root drivers of this crisis," said SAMHSA Principal Deputy Assistant Secretary Dr. Art Kleinschmidt. "State and Tribal Opioid Response funding provides critical resources to help prevent addiction, provide evidence-based treatment, and support long-term recovery and sobriety.

"The allocations include $1.48 billion for State Opioid Response and nearly $63 million for Tribal Opioid Response. Since the SOR program began in 2018, states report that nearly 1.3 million people have received treatment services, including more than 650,000 who received MOUD. Through the SOR program, nearly 1.5 million people have received recovery support services. SAMHSA grantees reported distributing more than 10 million opioid overdose reversal kits, with opioid overdose reversal medications being used to reverse more than 550,000 overdoses.

Since the TOR program began in 2018, Tribes report that approximately 16,500 patients have received treatment services, and SAMHSA grantees reported distributing more than 116,500 naloxone kits, with opioid reversal medications being used to reverse more than 1,750 overdoses.

Opioid response grant successes are most evident in qualitative improvements in the lives of participants. At the six-month follow-up, most individuals served through SOR funding reported improved housing stability, social connectedness, health, and employment and education achievement, as well as increased abstinence from alcohol or drug use. For most participants, mental health outcomes also improved, with clients reporting less depression, less anxiety, better behavioral control, and fewer suicide attempts.

Preventing substance misuse, expanding access to treatment, and supporting long-term recovery are key pillars of SAMHSA's newly released Strategic Priorities. These priorities are foundational to achieving the Administration's Make America Healthy Again goals.

Source: U.S. Department of Health and Human Services

Social Factors Help Explain Worse Cardiovascular Health among Adults in Rural vs. Urban Communities

NIH-funded study reveals variables, such as poverty and education, that may underpin higher rates of heart disease and its risk factors

By Sean Coady, MA, Deputy Chief of the Epidemiology Branch, Division of Cardiovascular Sciences, NHLBI

A research team funded by the National Institutes of Health (NIH) uncovered higher rates of heart disease and worse heart health affecting adults living in rural communities compared to urban areas and the factors that likely drive these differences. They found adults living in rural areas were more likely than those living in large cities to have heart disease (7% vs. 4%), high blood pressure (37% vs. 31%), high cholesterol (29% vs. 27%), obesity (41% vs. 30%), and diabetes (11% vs. 10%). Across all age groups, the differences in high blood pressure, obesity, and diabetes were largest among adults ages 20–39 living in rural areas vs. cities.

Investigators reviewed data from more than 27,000 adults who participated in the 2022 National Health Interview Survey to understand geographical differences in rates of heart disease and risk factors for conditions that affect the heart and blood vessels, such as high blood pressure, diabetes, and obesity. Since higher rates of heart disease among adults in rural areas compared to cities have been established, they also sought to understand factors driving these variations.

They found that factors such as levels of income and education, having enough food to eat, and owning a home mostly explained the higher rates of people in rural areas who had high blood pressure, diabetes, and heart disease. Prior research has also shown how difficult circumstances, such as living in poverty, can affect cardiovascular health, including increasing inflammation in the body. Additionally, having access to healthcare, which is important for overall health, did not factor into these differences. Lifestyle risk factors for heart disease such as smoking and being less active also didn't explain these differences, although adults living in rural areas were more likely to smoke and be less active.

The researchers also found that rates of high blood pressure, high cholesterol, diabetes, and heart disease were largest in rural areas compared to cities in the South. Rates of obesity were higher across rural areas throughout the U.S., especially in the Northeast.

More than 60 million U.S. adults live in rural communities, and heart disease remains the nation's leading cause of death. In this study, 1 in 7 adults lived in rural areas (counties of less than 50,000 people), 1 in 2 lived in small or medium-sized cities (counties of 50,000 to less than 1 million people), and 1 in 3 lived in large cities (counties of 1 million or more).

People who live in rural areas of the United States are more likely than urban residents to die prematurely from chronic diseases. CDC works to improve rural health through funding, research, surveillance, and telehealth. Photo courtesy of the U.S. Centers for Disease Control and Prevention

Identifying factors driving the higher burden of heart disease and risk factors in rural regions remains a critical research priority. The authors note that insights from their study could inform public health efforts and policies to support and improve the cardiovascular health of people — especially younger adults — living in rural areas.

The study was supported by the National Heart, Lung, and Blood Institute (NHLBI) grant R01HL174549.

Reference Study:

Liu M, Marinacci LX, Joynt Maddox KE, Wadhera, RK. Cardiovascular Health Among Rural and Urban US Adults—Healthcare, Lifestyle, and Social Factors. JAMA Cardiol. 2025; doi: 10.1001/jamacardio.2025.0538

Source: The National Heart, Lung, and Blood Institute

NIH Research Reveals New Insights about How "Bad" Cholesterol Works in the Body

Findings could pave the way for more personalized treatments for cardiovascular disease

National Institute of Health (NIH) scientists have made a significant breakthrough in understanding how "bad" cholesterol, known as low-density lipoprotein-cholesterol or LDL-C, builds up in the body. The researchers were able to show for the first time how the main structural protein of LDL binds to its receptor – a process that starts the clearing of LDL from the blood – and what happens when that process gets impaired.

The findings, published in Nature, further the understanding of how LDL contributes to heart disease, the world's leading cause of death, and could open the door to personalizing LDL-lowering treatments like statins to make them even more effective.

"LDL is one of the main drivers of cardiovascular disease which kills one person every 33 seconds, so if you want to understand your enemy, you want to know what it looks like," said Alan Remaley, MD, PhD, co-senior author on the study who runs the Lipoprotein Metabolism Laboratory at NIH's National Heart, Lung, and Blood Institute.

Until now scientists have been unable to visualize the structure of LDL, specifically what happens when it links up with its receptor, a protein known as LDLR. Typically, when LDL binds to LDLR, the process of clearing LDL from the blood begins. But genetic mutations can prevent that work, causing LDL to build up in the blood and get deposited into the arteries as plaque, which can lead to atherosclerosis, a precursor for heart disease.

In the new study, the researchers were able to use high-end technology to get a view of what's happening at a critical stage of that process and see LDL in a new light.

"LDL is enormous and varies in size, making it very complex," explained Joseph Marcotrigiano, PhD, chief of the Structural Virology Section in the Laboratory of Infectious Diseases at NIH's National Institute of Allergy and Infectious Diseases and co-senior author on the study. "No one's ever gotten to the resolution we have. We could see so much detail and start to tease apart how it works in the body."

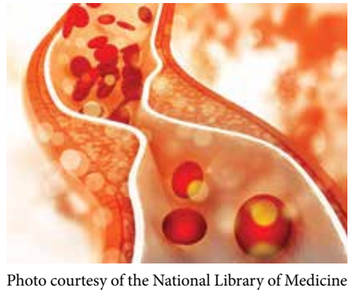


Photo courtesy of the National Library of Medicine

Using advanced imaging technique called cryo-electron microscopy, the researchers were able to see the entirety of the structural protein of LDL when it bound to LDLR. Then, with artificial intelligence-driven protein prediction software, they were able to model the structure and locate the known genetic mutations that result in increased LDL. The developers of the software, who were not involved in the study, were recently awarded the 2024 Nobel Prize in Chemistry.

The researchers found that many of the mutations that mapped to the location where LDL and LDLR connected, were associated with an inherited condition called familial hypercholesterolemia (FH). FH is marked by defects in how the body uptakes LDL into its cells, and people with it have extremely high levels of LDL and can have heart attacks at a very young age. They found that FH-associated variants tended to cluster in particular regions on LDL.

The study findings could open new avenues to develop targeted therapies aimed at correcting these kinds of dysfunctional interactions caused by mutations. But, as importantly, the researchers said, they could also help people who do not have genetic mutations, but who have high cholesterol and are on statins, which lower LDL by increasing LDLR in cells.

By knowing precisely where and how LDLR binds to LDL, the researchers say they may now be able to target those connection points to design new drugs for lowering LDL from the blood.

Funding: This work was supported by the Intramural Research Programs of the National Heart, Lung, and Blood Institute, National Institute of Allergy and Infectious Diseases, National Cancer Institute, and the High-Value Datasets program from the NIH Office of Data Science Strategy.

Source: National Institutes of Health

NIH Study Finds Infection-related Hospitalizations Linked to Increased Risk of Heart Failure

Findings highlight the importance of infection prevention measures and personalized heart failure care

A study funded by the National Institutes of Health has found that adults who were hospitalized for a severe infection, such as respiratory infections or sepsis, were more than twice as likely to develop heart failure years later. The findings, published in the *Journal of the American Heart Association*, underscore the importance of measures that help prevent severe infections, such as getting up-to-date vaccines and practicing safe hygiene.

"These are 'sit-up and take notice' findings," said Sean Coady, MA, deputy branch chief in the Division of Cardiovascular Sciences at the NIH's National Heart, Lung, and Blood Institute. "While there's already a reasonable body of evidence linking previous infections with heart attack, this study is focused on heart failure, which has been less studied yet affects an estimated six million Americans."

Photo courtesy of the National Library of Medicine

The study, part of the NHLBI-funded Atherosclerosis Risk in Communities (ARIC) Study, followed 14,468 adults aged 45-64 for up to 31 years, from 1987 to 2018. None had heart failure when the study began. The researchers found that individuals who experienced an infection-related hospitalization had a 2.35 times higher risk of developing heart failure at an average time of seven years after surviving the hospitalization, compared to those who did not get an infection. The researchers adjusted for sociodemographic and health-related factors and included different infection types, such as respiratory, urinary tract infections, and hospital-acquired in their assessment. They found that the association with heart failure was consistent no matter the type of infection.

Heart failure occurs when the heart is unable to pump enough blood to the body's organs and tissues. While there are many different kinds, the study focused mainly on heart failure with preserved ejection fraction (HFpEF), which occurs when the left side of the heart is too stiff to fully relax between heartbeats, and heart failure with reduced ejection fraction (HFrEF), which occurs when the left ventricle is too weak to pump out enough blood to the body. The researchers discovered that infections that required hospitalization were associated with an increased risk of both conditions. Notably, the risk was nearly three times higher for HFpEF, the most common form of heart failure among people over age 65 and the one with the most limited treatment options. Nearly half of participants experienced an infection-related hospitalization emphasizing the potentially large impact of severe infections on the heart health of older adults.

While the study only found an association between severe infections and heart failure — not a causal link — Ryan Demmer, PhD professor of epidemiology at the Mayo Clinic in Rochester, Minn. and the study's senior author, said patients still should consider commonsense approaches that keep severe infections at bay. He explained that someone who experiences an infection and are at high risk for cardiovascular disease should speak with their primary care provider to be sure they are receiving guideline directed medical therapies for cardiovascular disease.

Demmer said future research could build on the current findings by validating a causal link between infections and heart failure development. New research could also explore the potential for incorporating infection history into heart failure risk assessments and patient management strategies.

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Source: The National Institutes of Health

Long-term Exposure to Air Pollution Linked to Blood Clots in Veins that Bring Blood to the Heart

An observational study of more than 6,500 adults is one of the most detailed in the U.S.

By Courtney Thornburg, MD, Chief Medical Research Officer at the National Heart, Lung, and Blood Institute

A large study found that greater exposure to long-term air pollution was linked with increased risks for blood clots that can occur in deep veins, which, if untreated, can block blood flow and cause serious complications, even death.

These findings came from a longitudinal study funded by the National Institutes of Health (NIH) that included 6,651 U.S. adults who were followed for an average of 17 years between 2000 and 2018. Participants lived in or near one of six major metropolitan areas: New York, Baltimore, Chicago, Los Angeles, Minneapolis, and Winston-Salem, North Carolina.

Duplex ultrasonography imaging can detect blockages or blood clots in the deep veins is the standard imaging test to diagnose DVT. Photo courtesy of the U.S. Centers for Disease Control and Prevention

Throughout the study, 248 adults, 3.7% of the study sample, developed blood clots in deep veins that required hospital care. The likelihood of this outcome was linked to anywhere from a 39% to a more than two-fold increased risk based on long-term exposure to three different types of air pollutants.

Blood clots in deep veins, collectively known as venous thromboembolism (VTE), include deep vein thrombosis, which occurs when a blood clot forms in a deep vein of the legs, arms, or an internal organ, and pulmonary embolism, which occurs when a blood clot breaks off from a deep vein and travels to the lungs.

Exposure to air pollution, which can set the stage for inflammation and contribute to blood clotting, has long been associated with cardiovascular and respiratory diseases. While previous research has also suggested a link to VTE, this is the largest, most comprehensive U.S. study to report that association with three different types of air pollutants.

This included exposure to tiny air pollution particles equal to or less than 2.5 micrometers, which can be inhaled from a variety of sources, including smoke from coal-burning power plants, forest fires, and motor vehicle exhaust. Participants with greater overall exposure to this type of air pollution had a 39% increased associated risk for VTE compared to people exposed to lower levels. People with increased exposure to oxides of nitrogen and nitrogen dioxide, pollutants most often found from vehicle exhaust, had a respective 121% to 174% increased risk.

To reach these findings, the researchers analyzed the relationship between patients hospitalized for VTE and levels of air pollution collected through extensive biweekly community-level monitoring — including samples taken from the homes of participants. They then compared those with the highest exposure levels — the top 75% — to those with the lowest exposure — the bottom 25%. They also conducted multiple analyses to control for variables associated with VTE, such as age, exposure to tobacco, and underlying respiratory and other health conditions.

VTE affects up to 900,000 Americans each year. Many cases occur after surgery, but other factors, including age, long periods of inactivity, heart disease, pregnancy, and genetics, can increase risks.

The research, which is part of the Multi-Ethnic Study of Atherosclerosis (MESA), was funded by contracts and grants from NIH's National Heart, Lung, and Blood Institute and National Center for Advancing Translational Sciences, and the Environmental Protection Agency.

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Source: The National Heart, Lung, and Blood Institute

Topical Steroid Withdrawal Diagnostic Criteria Defined by NIH Researchers

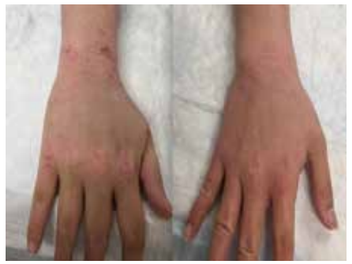
Criteria may help guide treatment of dermatitis

By Ian Myles, MD, MPH, Principal Investigator, Epithelial Therapeutics Unit in NIAID's Laboratory of Clinical Immunology and Microbiology

Researchers at the National Institutes of Health (NIH) have determined that dermatitis resulting from topical steroid withdrawal (TSW) is distinct from eczema and is caused by an excess of an essential chemical compound in the body. Scientists from NIH's National Institute of Allergy and Infectious Diseases (NIAID) identified treatments that could be studied in clinical trials for the condition based on their potential to lower levels of the chemical compound — called nicotinamide adenine dinucleotide (NAD+), a form of vitamin B3. The findings were published today in the Journal of Investigative Dermatology.

Dermatitis is characterized by inflammation, itching, or burning sensations on the skin, and can result from various conditions including TSW and eczema. Eczema, also known as atopic dermatitis, is a common cause of dermatitis and affects 10 to 30% of children and 2 to 10% of adults each year in the United States. Topical steroids — specifically glucocorticoids or topical corticosteroids — have long been used as a first-line treatment for dermatitis caused by eczema because the drugs are safe, effective, easy to apply, and considered well-tolerated.

Some people experience dermatitis after using topical steroids for prolonged periods of time and then stopping—a condition called TSW. Diagnosing and treating this condition is difficult because TSW is not well understood. Symptoms include skin redness, burning sensations, skin heat (thermal dysregulation), itching and peeling, which can even occur on parts of the body where topical steroids were not applied. As TSW and eczema have similar symptoms, it has been difficult to distinguish the two disorders.



Hand and wrist of a participant in the pilot study before (left) and after (right) treatment of topical steroid withdrawal symptoms with berberine, a mitochondrial complex I-blocking drug. Photo courtesy of the National Institute of Allergy and Infectious Diseases

To better understand TSW, a team led by scientists in NIAID's Laboratory of Clinical Immunology and Microbiology evaluated a previous survey that included 1,889 adults with symptoms similar to eczema. By dividing the participants into those with self-reported TSW and those without, the researchers identified characteristics unique to TSW. The researchers then conducted a pilot study including 16 people with symptoms consistent with TSW, 10 people with eczema but no symptoms of TSW, and 11 people without skin disease. They found that people with TSW symptoms had elevated levels of NAD+ in their blood serum and skin, while NAD+ levels were within a typical range in people without TSW symptoms.

The researchers subsequently used cultured skin cells and a mouse model to mimic TSW conditions. They found that NAD+ was produced in response to topical steroids and caused inflammation. The models suggested that administration of a drug that blocked the formation of NAD+ — called a mitochondrial complex I blockade — would improve TSW symptoms. In a pilot study to further assess this treatment strategy, the researchers evaluated subjective responses among study participants who used the mitochondrial complex I-blocking drugs metformin, berberine, or both. After three to five months of use, most participants reported improvement in TSW symptoms.

The scientists provisionally established criteria that can be used by health care providers to identify TSW in people. People who have stopped topical steroid treatment and meet the criteria may be diagnosed by practitioners as having TSW. The researchers suggest that patients identified as having TSW could be treated using the proposed mitochondrial complex I-blocking drugs.

The results of this study may help practitioners identify TSW in patients and work towards developing safe and effective treatments. According to the researchers, more research is needed to determine whether all patients with TSW have an excess of NAD+, or if there are other features that define TSW. Additionally, the diagnostic criteria will help health care providers and researchers to better understand the prevalence of TSW and evaluate the effects of using topical steroids.

Reference

N Shobnam, G Ratley, S Saksena et al. Topical Steroid Withdrawal is a Targetable Excess of Mitochondrial NAD+. Journal of Investigative Dermatology 10.1016/j.jid.2024.11.026 (2025).

Source: The National Institutes of Health

Beta-HPV Can Directly Cause Skin Cancer in Immunocompromised People

NIH case study finds virus drives creation of cancer cells in context of defective T cells

Researchers at the National Institutes of Health (NIH) have shown for the first time that a type of human papillomavirus (HPV) commonly found on the skin can directly cause a form of skin cancer called cutaneous squamous cell carcinoma (cSCC) when certain immune cells malfunction. cSCC is one of the most common cancers in the United States and worldwide. Previously, scientists believed HPV merely facilitated the accumulation of DNA mutations caused by ultraviolet (UV) radiation, usually the primary driver of cSCC. The findings were published today in *The New England Journal of Medicine*.

"This discovery could completely change how we think about the development, and consequently the treatment, of cSCC in people who have a health condition that compromises immune function," said Andrea Lisco, MD, PhD, of NIH's National Institute of Allergy and Infectious Diseases (NIAID). "It suggests that there may be more people out there with aggressive forms of cSCC who have an underlying immune defect and could benefit from treatments targeting the immune system."

Andrea Lisco, MD, PhD, Chief, Mucosal and Cutaneous Viral Immunopathogenesis Unit and Lasker Clinical Research Scholar. Photo credit National Institutes of Health, courtesy of the National Institute of Allergy and Infectious Diseases

There are many different types of HPV, each tending to infect cells in a particular tissue and part of the body. The types of HPV found mostly on the skin — beta-HPV — are considered benign members of the skin microbiome that typically do not integrate into the DNA of skin cells. This contrasts with the alpha types of HPV, known to integrate into the DNA of mucous membrane cells and directly cause cancer of the genitals, anus, head and neck.

The NIH researchers made their discovery in a 34-year-old woman who came to the NIH Clinical Center for evaluation and treatment of recurrent cSCC on her forehead. She had undergone multiple surgeries and a round of immunotherapy to try to remove or kill the tumor, but it repeatedly grew back. Her local doctors thought this was due to an inherited inability to repair DNA damaged by UV radiation plus an impairment in immune cells called T cells. The tumor was one of many progressively worsening HPV-related diseases the woman was experiencing.

Through a sophisticated genetic analysis, the NIH researchers discovered that a beta-HPV had integrated into the cellular DNA of the woman's well-established tumor and was extensively producing viral proteins there. This contradicted the prevailing theory that beta-HPV only facilitates the establishment of cSCC without integrating into cellular DNA and plays no role in maintaining the cancer. Further genetic analysis of the woman's cells showed they were fully capable of repairing DNA damage from UV radiation, suggesting the virus alone had caused cSCC.

To understand how beta-HPV could take the unusual steps of integrating into the woman's skin-cell DNA and multiplying there unchecked, the investigators studied the woman's inherited immune disorder. They found that her genetic mutations greatly hampered T cells from activating in response to skin-cell infection by beta-HPV. This suggested that the immune disorder itself was responsible for the woman's worsening HPV-related diseases, including the beta-HPV cSCC on her forehead, and that treating this disorder might cure all of them.

Accordingly, NIH investigators developed a personalized plan to give the woman a stem cell transplant to replace her defective T cells with healthy ones. The process required extreme care because she was immunocompromised even before treatment began. The transplant proceeded without complications. Afterward, all her HPV-related diseases including the recurrent, aggressive cSCC resolved and have not recurred during the more than three years since the transplant. This confirms that the woman's inherited disorder had prevented her T cells from keeping beta-HPV in check, allowing the virus to directly cause and sustain cSCC.

"This discovery and successful outcome would not have been possible without the combined expertise of virologists, immunologists, oncologists and transplant specialists, all working under the same roof of the NIH Clinical Center," said Dr. Lisco.

According to the study authors, their finding suggests that other people with defective T-cell responses may also be susceptible to cancer caused directly by beta-HPV.

Source: National Institutes of Health

Nephrology

Addressing the Kidney Disease Crisis with Resources, Help and Advocacy

By The American Kidney Fund

Kidney disease is a rapidly growing disease that is now the ninth leading cause of death[1] worldwide. This life-altering condition — which impacts about 1 in 7 American adults — has no cure and is sometimes referred to as a "silent killer" because it is often not detected until the later stages, when symptoms are more severe. More than 830,000 people in the United States live with kidney failure, the majority of whom must receive dialysis treatments multiple times a week to stay alive.

The American Kidney Fund (AKF), a national nonprofit with a mission to fight kidney disease and help people live healthier lives, has a number of evidence-based, easy-to-understand resources for your patients and for health care professionals like you, as well as programs that help support the kidney community. Here are just some of the ways AKF can help your patients living with or at risk for kidney disease:

1. **Know Your Kidneys[2], Know Your Cause[3], Know Your Plan[4]:** This educational resource consists of three pathways: Know Your Kidneys® offers general information about kidney disease, prevention strategies, signs and symptoms, risk factors and tests to understand kidney health. Know Your Cause® provides disease-specific content on possible causes of a person's existing kidney disease.

   Know Your Plan® provides information to people who know they have CKD or kidney failure and want more guidance on living a healthy life with their condition.

2. **Kidney Health for All[5]:** AKF launched the Kidney Health for All® program to address health disparities and advance health equity. The website for the program has numerous resources for doctors and for patients, including a guide for patients with diabetes and/or high blood pressure[6] on talking to their doctor about preventing kidney disease, a guide for doctors on how to discuss home dialysis[7] with their patients, guides for patients[8] and doctors on clinical trials[9], and other resources on topics such as organ donation, kidney transplants and the importance of family history to one's kidney health.

3. **Kidney Kitchen[10]:** After receiving numerous questions, concerns and stories from people with kidney disease about nutrition, AKF created this website, which has hundreds of kidney-friendly recipes. Kidney Kitchen® features in-depth guidance on what healthy eating means for people in every stage of kidney disease, as well as practical cooking techniques and deep dives into what various nutrients mean for people with CKD. Kidney Kitchen has a professional-facing version of the website, Kidney Kitchen Pro™[11], which is a resource for dietitians who work with people who have or are at risk for kidney disease.

4. **Disease-specific educational resources:** There are many types of kidney diseases, each with different causes and effects on the body. AKF has comprehensive educational webpages, campaigns and resources on 23 types of kidney disease[12], including focal segmental glomerulosclerosis[13], polycystic kidney disease[14], APOL1-mediated kidney disease[15], vasculitis[16] and lupus nephritis[17]. Each of these pages includes an overview of the disease, risk factors, a list of symptoms to look out for, information on testing for the disease, treatments, resources and more.

5. **Kidney Action Week[18]:** Kidney Action Week® is the only free, online conference in the nation where people with kidney disease, health professionals, caregivers, advocates and other members of the kidney community come together to learn and connect. The event has virtual sessions about a variety of kidney-related topics, such as rare kidney disease, kidney disease prevention, detection and management, transplant and living organ donation and clinical research and innovation. Sessions from this year's Kidney Action Week can be watched at youtube.com/@kidneyfund.

6. **AKF's Living Donor Assistance Program[19]:** There are over 96,000 Americans waiting for a kidney transplant. The Living Donor Assistance Program™ aims to increase access to living kidney donation by reimbursing living kidney donors for out-of-pocket costs they incur as part of the donation process. Currently, the program assists living donors who have provided a kidney to a recipient in Illinois, Massachusetts and New York City[20], and to individuals who have donated a kidney and/or have been evaluated to donate a kidney to someone in Maryland, Virginia or Washington, D.C.[21]

7. **Health Insurance Premium Program (HIPP)[22]:** The majority of dialysis patients are unable to work, and many cannot afford their medical bills. HIPP provides grants to dialysis and recent transplant patients who cannot pay their monthly insurance premiums and ensures access to life-saving medical care. The program helps address health equity challenges, as the majority of HIPP recipients identify themselves as members of racial and ethnic minority groups.

8. **AKF's Advocacy Network[23]:** AKF has a nationwide Advocacy Network of more than 40,000 Ambassadors who work with Congress, the administration, federal agencies, state governments and other stakeholders to advance legislation and regulatory policies that are important to people with and at risk for kidney disease and their families. AKF Ambassadors play a key role in educating elected officials and the media about the impact of kidney disease.

Visit kidneyfund.org to learn more about all the ways AKF is working to fight kidney disease on all fronts and improve the lives of people living with this condition.

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Dermatology

Treating Vitiligo: Studies Look for Long-term Options

JAK inhibitors and immunosuppressants hold promise

Decades of research by professors Caroline Le Poole, PhD, and Dr. Harris have helped to reveal the central underpinnings of this condition.

Fifteen to 20 years ago, the autoimmune nature of vitiligo began to surface. Since then researchers have been developing an increasingly more accurate map about underlying mechanisms. This is now allowing the development of several treatments to disrupt vitiligo.

While there's no cure for vitiligo yet, there are very good treatments available today. That said, Dr. Harris, Dr. Le Poole, and other researchers are working hard to find ones that are even more effective.

"There are now four clinical trials testing Janus kinase (JAK) inhibitors," Dr. Harris notes. There were none just a few years ago. "We're very close to having a U.S. Food and Drug Administration-approved treatment," he adds.

JAK inhibitors work to prevent the signaling of specific proteins that cause vitiligo. This kind of targeted treatment is promising, but it's still not a cure. When people with vitiligo stop the drug, the disease comes right back, in the same places it was before. Dr. Harris and Dr. Le Poole have recently learned that they may be able to stop memory cells from allowing the disease to come back. "Now that would be a total game changer," Dr. Harris says. "It would mean we could treat people for a short time and get years' worth of benefits."

"Many people believe that vitiligo is a rare disease," says National Institutes of Health-supported researcher John E. Harris, MD, PhD. "It's not. It's one of the most common diseases, affecting one in 100 people worldwide. We want to keep the research going and get to a point where people can decide whether they want to embrace their spots — or not."

— Caroline Le Poole, PhD

Photo credit Adobe Stock, courtesy of the National Library of Medicine

Dr. Le Poole says their research teams are also looking to start a clinical trial for an immunosuppressant, known as a heat shock protein, that could help reverse vitiligo.

"The treatment is meant to nip the development of the disease in the bud," says Dr. Le Poole. "There are new options on the horizon."

As research continues to advance, many people with vitiligo are also embracing, rather than treating, their patches. Celebrities, such as model Winnie Harlow, and other advocates have helped inspire confidence and spread awareness.

"People are seeing the beauty in their spots," Dr. Le Poole says.

"Patients are more expressive than ever before. They're presenting their disease in an open way and are being empowered to accept their skin exactly how it is."

Dr. Le Poole and Dr. Harris still want to give people with vitiligo as many treatment options as possible, so they can choose what's best for them.

"We want to keep the research going and get to a point where people can decide whether they want to embrace their spots—or not," Dr. Le Poole adds.

Source: National Institutes of Health, National Library of Medicine

Emergency Medicine

Adopting Pediatric Readiness Standards in Emergency Departments Could Save More than 2,000 Lives Each Year

NIH-funded study suggests standards would range from no cost to $11.84 per child

Widespread adoption of standards designed to improve care for children in U.S. hospital emergency departments could save an estimated 2,143 lives each year, suggests a study funded by the National Institutes of Health (NIH). The standards are published by The National Pediatric Readiness Project, an initiative to empower all emergency departments to provide effective emergency care to children, and encompass training for staff, coordination of health care, and the procedures and medical equipment needed to care for ill and injured children. According to the study, adopting the standards would range from no cost to $11.84 per child, depending on the state.

The researchers analyzed data on the readiness standards of 4,840 hospital emergency departments in all 50 U.S. states and the District of Columbia. Their analysis included data on children ranging from birth to 17 years old who needed emergency services, hospitalization, transfer to another hospital or who had died in the emergency department.

Photo credit National Institutes of Health, courtesy of the National Institute of Child Health and Human Development

A total of 842 emergency departments (17%) had high pediatric readiness. Based on the cost of emergency department services, the researchers estimated that the annual cost for all U.S. emergency departments to reach high readiness was more than $207 million. The authors concluded that implementing the standards in all U.S. emergency departments may have prevented an estimated 2,143 (28.1%) of the 7,619 U.S. pediatric deaths that occur in emergency departments or following admission from emergency departments each year.

The study was led by Craig D. Newgard, MD, of Oregon Health & Science University, Portland. It appears in *JAMA Network Open.* Funding was provided by NIH's Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD).

Reference Article

Newgard, CD et al. State and national estimates of the cost of emergency department readiness and lives saved. *JAMA Network Open* (2024).

Source: National Institutes of Health

The National Pediatric Readiness Project (NPRP) empowers emergency departments (EDs) to improve their capability to provide high-quality care for children, also known as being "Pediatric Ready." Led by the Health Resources and Services Administration EMSC Program with support from multidisciplinary organizations, NPRP offers free and open-access assessment opportunities as well as resources to address gaps.

Why improve pediatric emergency care?

Children have unique characteristics that require specific care, especially in emergencies. But not all children have access to specialized pediatric care. In fact, 80% of children receive emergency care in general EDs. Low pediatric patient volume can make it challenging to prioritize pediatric care. In the 2021 NPRP assessment, the median score for EDs was 69.5 out of 100.

Pediatric Readiness saves lives

Research shows that high levels of Pediatric Readiness (>87 points) are associated with:

- 76% lower mortality rate in ill children
- 60% lower mortality rate in injured children
- 2,143 children's lives saved across the United States each year

Emergency Medicine

EMS Worker Safety

Research shows that EMS clinicians have high rates of injuries and fatalities. Job hazards include lifting, exposure to illnesses and hazardous substances, and transport in emergency vehicles.

Emergency Medical Services (EMS) clinicians provide pre-hospital emergency care and include emergency medical responders, emergency medical technicians, and paramedics. They may be paid workers or volunteers.

EMS can be provided by:

- Private ambulance companies
- Fire or police departments
- Public EMS agencies
- Hospitals

The 2020 National EMS Assessment reported a total of 1,030,760 licensed EMS clinicians in the United States. This estimate includes paid and volunteer EMS workers.

The 2022 Current Population Survey estimate for the number of employed EMTs and paramedics was 248,000. This estimate is limited to paid EMS clinicians.

Photo credit kali9 Getty Images, courtesy of the U.S. Centers for Disease Control and Prevention

EMS workers are vital to disaster response. Their duties create an inherent risk for on-the-job injuries and illnesses. EMS workers face many safety risks, including:

- Lifting patients and equipment
- Treating patients with infectious illnesses
- Handling hazardous chemical and body substances
- Participating in emergency transport of patients in ground and air vehicles
- Potentially violent patients

Recommendations include:

- Practice safe lifting
- Use personal protective equipment (PPE)
- Wear slip-resistant footwear
- Use seatbelts in ambulances
- Practice de-escalation techniques for potentially violent scenarios

EMS employers can establish policies, offer training, and provide needed equipment to:

- Promote safe patient-handling techniques
- Protect workers from blood and body fluid exposures
- Prevent slips, trips, and falls
- Improve motor vehicle safety
- Implement workplace violence prevention programs

Source: The U.S. Centers for Disease Control and Prevention

Endocrinology

Turning the Tide on Youth-Onset Type 2 Diabetes

By Brandon Levy, Health Communications Specialist for the NIH's Intramural Research Program

One of the most important things that pediatricians like Dr. Stephanie Chung learn during their medical training is that kids aren't just mini-adults. One of the clearest examples of this is type 2 diabetes, a disease that was once so vanishingly rare in young people that it was commonly referred to as 'adult-onset' diabetes. Sadly, that nickname has since become outdated. Type 2 diabetes now affects many more kids and young adults than it used to, often with more severe consequences than those seen in older patients.

"It's not like the disease you see in your grandpa who gets type 2 diabetes when he's 60 or 65 years old," Dr. Chung explains. "Kids with type 2 diabetes, unfortunately, can quickly get very sick. We want to understand why it is that these kids are different — why they're developing related medical problems so rapidly and why they are not responding to the typical medications."

Type 2 diabetes occurs when cells start to become de-sensitized to the commands of a hormone called insulin, which instructs them to absorb sugar in the blood. The resulting high blood

Photo credit Milos Dimic/ E+ via Getty Images, courtesy of the National Institutes of Health

From left to right: (Front Row): Ila Kacker, Lilian Mabundo, Dr. Stephanie Chung, Noemi Malandrino, Natalie Macheret and Geethika Thota and (Back Row) Eleanor Flacke, Samson Cantor, Aaron Hengist and Madilyn Gaydos. Photo courtesy of the National Institutes of Health

sugar can harm many of the body's organs if it persists.

By some estimates, the number of people under the age of 20 newly diagnosed with type 2 diabetes doubled between 2002 and 2018. What's more, those young patients tend to develop diabetes-related complications such as kidney and heart disease much more quickly than adults with the condition.

On top of that, the first-line treatment for the disease is also significantly less effective in young people than in older patients. That treatment, called metformin, is supposed to help lower blood sugar levels by reducing the amount of sugar made in the liver.

Unfortunately, it's not enough to control the disease in about half of young people, requiring them to be put on another medication within two years of starting metformin. By contrast, most adult patients diagnosed with type 2 diabetes do well on metformin for up to a decade.

"When I first started to study metformin, so many people were asking me, 'Why are you doing this? Everybody understands metformin,'" Dr. Chung recalls. "And I just kept thinking that if we understood it already, then why doesn't it work well for so many young people?"

Contrary to the dominant theory about metformin, Dr. Chung's research suggests that the medication may not really have much of an effect on the amount of sugar produced by the liver after all. Rather, metformin might lower blood sugar by shifting the population of microbes living in the intestines, known as the gut microbiome.

"It took looking at the disease in these kids to really understand the mechanisms and find out why that doctrine that we were taught in our textbooks wasn't quite right," Dr. Chung says. "Both our own studies and other research have come out recently supporting what some might call 'off-target mechanisms' for metformin — although I don't like to use that phrase because I don't know that we really understood what the target was in the first place."

Based on her findings, Dr. Chung contends that many young people with type 2 diabetes should be treated with a combination of metformin and another drug called liraglutide, which can assist metformin with controlling patients' blood sugar. Importantly, her research could help doctors figure out which patients will need more than metformin and which may not, an important consideration since additional medications often lead to additional side effects.

Having studied the livers and gastrointestinal tracts of kids with type 2 diabetes, Dr. Chung has now shifted her focus to their hearts. In adults, heart disease is usually linked with high levels of a form of cholesterol called LDL cholesterol, and many adults take statins to bring their LDL cholesterol levels down.

However, Dr. Chung's research suggests this relationship doesn't hold up in young people with type 2 diabetes, who don't typically have dangerously high levels of LDL cholesterol, but still often develop early signs of cardiovascular disease. To solve that mystery, her team is conducting the Young at Heart study, which explores the biological and social drivers of cardiovascular disease in young patients with type 2 diabetes. She sees patients enrolled in the study at both NIH and Children's National Hospital in Washington, D.C.

Photo courtesy of the National Institute of Diabetes and Digestive and Kidney Diseases

"Because of the differences between type 2 diabetes in kids versus adults, it's not sufficient to just take what we're doing with the adults and do the same with the kids by starting them on these statins," Dr. Chung says.

Source: National Institute of Health Clinical Center

Endocrinology

A Report Card: Diabetes in The United States

Diabetes

40.1 million people have diabetes.

That's about 1 in every 8 people.

More than 1 in 4 adults with diabetes don't know they have it.

Prediabetes

115.2 million American adults — more than 2 in 5 — have prediabetes.

8 in 10 adults with prediabetes don't know they have it.

Cost = $640 Billion

Diabetes accounted for 25% of all health care spending in 2021.

Medical costs for people with diabetes are more than twice as high as for people without diabetes.

People who have diabetes are at higher risk of serious health complications:

- Blindness
- Kidney failure
- Heart disease
- Stroke
- Loss of toes, feet, or legs

Type 1 Diabetes, where the body doesn't make enough insulin, can develop at any age. There is no known way to prevent it.

In adults, type 1 diabetes accounts for approximately 5-10% of all diagnosed cases of diabetes.

Just over 21,700 youth diagnosed in 2022

Type 2 Diabetes, where the body can't use insulin properly, can also develop at any age however most cases can be prevented.

In adults, type 2 diabetes accounts for approximately 90-95% of all diagnosed cases of diabetes.

Graphic courtesy of the U.S. Centers for Disease Control and Prevention

Nearly 14,500 youth diagnosed in 2022

Risk factors for type 2 diabetes include:

- Being overweight
- Having a family history
- Being physically inactive
- Being 45 or older

1.5 million people 18 years or older diagnosed with diabetes in 2023

Prevent or delay type 2 diabetes by making the following recommendations to your patients:

- Eat healthy
- Be more active
- Lose weight

Managing Diabetes properly includes:

- Working with a health professional
- Eating healthy
- Staying active

Source: The U.S. Centers for Disease Control and Prevention

Emergency Department Screening More than Doubles Detection of Syphilis Cases

NIH-supported study shows potential of strategy to reach people with and without symptoms

Providing optional syphilis tests to most people seeking care at a large emergency department led to a dramatic increase in syphilis screening and diagnosis, according to a National Institutes of Health (NIH)-supported study of nearly 300,000 emergency department encounters in Chicago. Most people diagnosed had no symptoms, which suggests that symptom-based testing strategies alone could miss opportunities to diagnose and treat people with syphilis. The results were published today in the journal *Open Forum Infectious Diseases*.

The Centers for Disease Control and Prevention (CDC) estimates that adult and congenital syphilis cases increased by 80% and 183% respectively between 2018 and 2022. Improved syphilis diagnosis strategies will be essential for reaching populations such as pregnant women and people with limited access to health care. The optimal model for syphilis screening has not been identified, particularly for preventing congenital syphilis. Previous literature supports targeted emergency department syphilis screenings based on clinical factors such as active symptoms or pregnancy. However, the screening criteria used in those models would not capture most people whose syphilis is asymptomatic.

In the current study, the team introduced a syphilis screening strategy that offered optional syphilis tests to anyone whose electronic health record indicated they were between the ages of 18 and 64 years, had no documented HIV diagnosis, and had not been screened for HIV within the past 12 months. Syphilis testing also could be ordered for anyone not meeting those criteria based on clinical decision making. The study was conducted in a large, urban, academic emergency department in Chicago and assessed screening and diagnosis outcomes between June 2017 and May 2021 — two years before the novel screening strategy intervention was introduced, and two years while it was in use — amassing a data set of 299,651 emergency department encounters.

Before the screening strategy intervention was introduced, only 5,209 of 146,644 (3.6%) people received syphilis tests. Post-intervention, testing increased dramatically to 37,289 of 153,007 or 24.4% of emergency department encounters. The number of people with presumed active syphilis infection based on the study testing algorithm increased from 161 to 624 post-intervention. Only a small proportion of people with presumed active syphilis infection presented with symptoms or underwent sexually transmitted infection testing. Among pregnant people, the proportion

Rapid testing items for syphilis (bottom right); a colorized electron micrograph of Treponema pallidum, the bacteria that cause syphilis (spiral-shaped bacteria have been highlighted in pink) (center) and a background image featuring an emergency room setting. Photo courtesy of the National Institute of Allergy and Infectious Diseases

of people screened increased from 272 of 4,579 (5.9%) pre-intervention to 2,061 of 4,129 (49.9%) post-intervention. Confirmed syphilis diagnoses among pregnant people increased from two cases pre-intervention to 15 post-intervention, while the positivity rate remained constant, suggesting many missed opportunities for diagnosis pre-intervention. The number of concurrent syphilis and HIV diagnoses increased from seven to 24 without any additional intervention specific to HIV testing.

The authors suggest that optional emergency department screening could help close current healthcare gaps in syphilis diagnosis and treatment, including among pregnant people, high incidence populations, and people with limited access to routine health care. The study was led by the University of Chicago Sections of Emergency Medicine and Infectious Diseases and Global Health, with funding from the NIH's National Institute of Allergy and Infectious Diseases (NIAID).

Reference

Stanford et al. An Opt-out Emergency Department Screening Intervention Leads to Major Increases in Diagnosis of Syphilis. *Open Forum Infectious Diseases* DOI: 10.1093/ofid/ofae490/7743295 (2024).

Source: The National Institutes of Health

HHS Announces $100M in Pilot Funding Opportunity to Eliminate Hepatitis C

The U.S. Department of Health and Human Services (HHS) has announced a $100M pilot funding opportunity to prevent, test for, treat, and cure Hepatitis C (HCV) in individuals with substance use disorder (SUD) and/or serious mental illness (SMI).

This program is designed to support communities severely affected by homelessness and to gain insights on effective ways to identify patients, complete treatment, cure infections, and reduce reinfection by Hepatitis C (a liver disease caused by the Hepatitis C virus).

"HHS is delivering on our promise to the American people for a healthier, brighter future," said HHS Secretary Robert F. Kennedy, Jr. "Through this pilot program, we are launching a comprehensive, integrated care model that not only cures HCV but also tackles critical risk factors like substance use, mental health challenges, and homelessness head-on."

The Hepatitis C Elimination Initiative Pilot was developed and will be administered by the Substance Abuse and Mental Health Services Administration (SAMHSA). The pilot is a significant accomplishment in President Trump's agenda to Make America Healthy Again.

This upfront investment is a common-sense and scientifically driven initiative projected to both save lives and save community health care costs in the long run. State and community-based organizations are among the entities eligible to apply for the program.

"SAMHSA is committed to Make America Healthy Again by delivering holistic treatment to each person with our belief that no one is too sick to recover," said Substance Abuse and Mental Health Services Administration Principal Deputy Assistant Secretary Art Kleinschmidt. "SAMHSA envisions that the selected demonstration sites will advance HHS's gold standard in provision of effective treatment while developing best practices and successful models that can be applied to additional communities."

Photo courtesy of the Substance Abuse and Mental Health Services Administration

"Hepatitis C affects over 2 million Americans and claims thousands of lives every year. Curing hepatitis C makes Americans healthy again while saving taxpayers billions by eliminating the need for chronic care," said Senator Bill Cassidy, MD (R-LA). "I thank President Trump and Secretary Kennedy for their leadership, and I look forward to working with them to eliminate hepatitis C."

Hepatitis C is a chronic disease that often intersects with other major health complications, especially addiction, mental illness, and homelessness.

Untreated hepatitis C can result in the development of additional chronic diseases including cirrhosis, liver failure, and liver cancer.

Highly effective oral medications can now be provided to patients that result in high HCV cure rates following 8-12 weeks of treatment.

Source: The United States Department of Health and Human Services

Infectious Diseases

Measles Outbreak is Call to Action for All of Us

MMR vaccine is crucial to avoiding potentially deadly disease

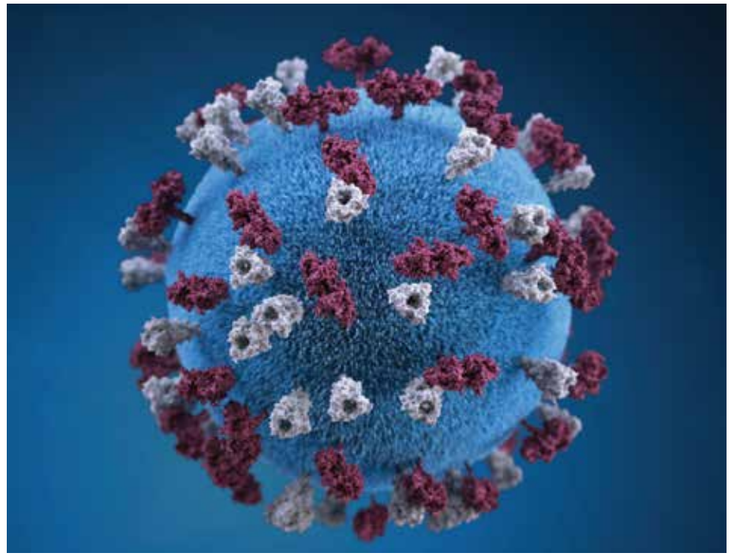
By HHS Secretary Robert F. Kennedy, Jr.

As the Secretary of the U.S. Department of Health and Human Services, I am deeply concerned about the recent measles outbreak. This situation has escalated rapidly, with the Texas Department of State Health Services (DSHS) reporting 146 confirmed cases since late January 2025, primarily in the South Plains region. Tragically, this outbreak has claimed the life of a school-aged child, the first measles-related fatality in the United States in over a decade.

Measles is a highly contagious respiratory illness with certain health risks, especially to unvaccinated individuals. The virus spreads through direct contact with infectious droplets when an infected person breathes, coughs, or sneezes. Early symptoms include high fever, cough, runny nose, and red, watery eyes, followed by a characteristic body rash. Most cases are mild, but rare complications can be severe, including pneumonia, blindness, and encephalitis. Prior to the introduction of the vaccine in the 1960s, virtually every child in the United States contracted measles. For example, in the United States, from 1953 to 1962, on average there were 530,217 confirmed cases and 440 deaths, a case fatality rate of 1 in 1,205 cases.

Vaccines not only protect individual children from measles, but also contribute to community immunity, protecting those who are unable to be vaccinated due to medical reasons.

— HHS Secretary Robert F. Kennedy, Jr.



An illustration of the virus which causes measles. Photo credit Allison M. Maiuri, MPH, CHES, courtesy of the U.S. Centers for Disease Control and Prevention

The current Texas outbreak has predominantly affected children, with 116 of the 146 cases occurring in individuals under 18 years of age. The DSHS reports that 79 of the confirmed cases involved individuals who had not received the measles, mumps, and rubella (MMR) vaccine, while 62 cases had unknown vaccine status. At least five had received an MMR vaccine. In response to this outbreak, I have directed the Centers for Disease Control and Prevention (CDC) and the Administration for Strategic Preparedness and Response (ASPR) to work closely with the Texas health authorities to provide comprehensive support. HHS' efforts include offering technical assistance, laboratory support, vaccines, and therapeutic medications as needed.

The CDC is in continuous communication with Texas health officials, ensuring a coordinated and effective response to contain the outbreak. I have spoken with Gov. Greg Abbott and Texas health officials, committing to providing them any additional support they need to bring this outbreak to an end. I have also spoken to the bereaved parents of the deceased child to offer consolation.

As healthcare providers, community leaders, and policymakers, we have a shared responsibility to protect public health. This includes ensuring that accurate information about vaccine safety and efficacy is disseminated. We must engage with communities to understand their concerns, provide culturally competent education, and make vaccines readily accessible for all those who want them.

It is also our responsibility to provide up-to-date guidance on available therapeutic medications. While there is no approved antiviral for those who may be infected, CDC has recently updated their recommendation supporting administration of vitamin A under the supervision of a physician for those with mild, moderate, and severe infection. Studies have found that vitamin A can dramatically reduce measles mortality.

Parents play a pivotal role in safeguarding their children's health. All parents should consult with their healthcare providers to understand their options to get the MMR vaccine. The decision to vaccinate is a personal one. Vaccines not only protect individual children from measles, but also contribute to community immunity, protecting those who are unable to be vaccinated due to medical reasons.

Tens of thousands died with, or of, measles annually in 19th Century America. By 1960 — before the vaccine's introduction — improvements in sanitation and nutrition had eliminated 98% of measles deaths. Good nutrition remains a best defense against most chronic and infectious illnesses. Vitamins A, C, and D, and foods rich in vitamins B12, C, and E should be part of a balanced diet.

Healthcare professionals on the front lines of this outbreak are working tirelessly to treat affected individuals and prevent further transmission. Their dedication and resilience are commendable, and they deserve unwavering support. It is essential that we provide them with the resources and backing they need to continue their vital work.

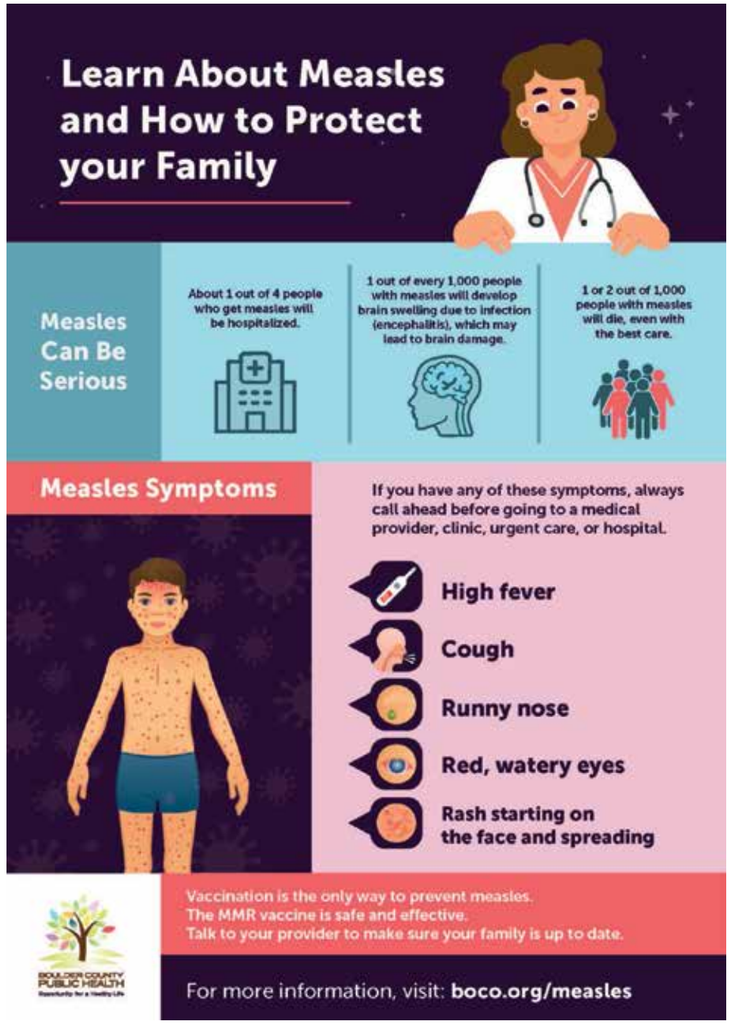


Illustration credit state of Colorado Boulder County Health Department

The measles outbreak in Texas is a call to action for all of us to reaffirm our commitment to public health. By working together — parents, healthcare providers, community leaders, and government officials, we can prevent future outbreaks and protect the health of our nation. Under my leadership, HHS is and will always be committed to radical transparency to regain the public's trust in its health agencies.

Source: The U.S. Department of Health and Human Services

Infectious Diseases

NIH-funded Clinical Trial Will Evaluate New Dengue Therapeutic

A clinical trial supported by the National Institutes of Health (NIH) is testing an experimental treatment designed to help people suffering the effects of dengue, a mosquito-borne viral disease. The study is supported by NIH's National Institute of Allergy and Infectious Diseases (NIAID), and will involve exposing adult volunteers to a weakened strain of dengue virus that causes a mild form of the disease and administering an investigational therapeutic at various doses to assess its safety and ability to lessen symptoms.

Dengue is transmitted via infected Aedes mosquitoes and sickens as many as 400 million people each year, primarily in tropical and subtropical parts of the world, according to the U.S. Centers for Disease Control and Prevention. In 2024, dengue cases surged to record levels in the Americas with local U.S. transmission reported in Arizona, California, Florida, Hawaii, and Texas.

Dengue is endemic in Puerto Rico, which reported nearly 1,500 cases last year. Most people with dengue do not develop symptoms, but those who do commonly experience severe headache and body aches, nausea and vomiting, fever and rash. One in 20 people who get sick with dengue progress to severe illness, which may lead to shock, internal bleeding, and death. There is currently no Food and Drug Administration-approved treatment for dengue.

"When caring for a patient who is critically ill with dengue, healthcare providers have few options other than providing supportive care," said NIAID Director Jeanne Marrazzo, MD, MPH. "We must find safe and effective therapeutics to provide much-needed relief to people suffering from dengue."

The new clinical trial will test the ability of AV-1, an investigational human monoclonal antibody therapeutic developed by AbViro (Bethesda, Maryland), to mitigate clinical symptoms when administered before and after dengue virus infection. The results of a previously completed NIAID-supported Phase 1 trial indicated that AV-1 is safe in humans, providing the basis for the new clinical trial to test its safety and efficacy.

The Phase 2 clinical trial will enroll at least 84 healthy adult volunteers at two sites: the Johns Hopkins Bloomberg School of Public Health Center for Immunization Research in Baltimore, and the University of Vermont Vaccine Testing Center in Burlington.

Following an initial screening and physical examination, volunteers will be randomly assigned to one of two groups. One group will receive AV-1 one day prior to being challenged with a mild strain of dengue virus, and the other will receive AV-1 four days after being challenged with the dengue virus. Each group will be further subdivided to receive 100 mg, 300 mg, or 900 mg of AV-1, delivered in a 60-minute intravenous infusion. For each of the three dosage levels, 12 participants will receive the investigational monoclonal antibody, and two will receive a placebo.

Before or after AV-1 dosing, each volunteer will receive an injection of attenuated (weakened) dengue virus. In earlier studies using this challenge virus, most volunteers developed a rash, and some had other mild dengue symptoms, such as joint and muscle pain or headache. None of the volunteers developed dengue fever or severe dengue.

Volunteers will participate in regular follow-up visits with study staff for at least 155 days to carefully monitor the effects of the investigational monoclonal antibody. Through physical exams, diary cards and blood samples, researchers will document how the volunteers' immune systems respond to the dengue virus challenge, how quickly the virus vanishes from their bloodstream and any symptoms they may experience. The researchers will use this information to determine how AV-1 affects the volunteers' ability to recover from dengue compared to placebo and to determine the dosages at which AV-1 may be effective.

If AV-1 shows promising results in this clinical trial, researchers may pursue further clinical evaluations of its safety and efficacy against dengue virus. For more information about the study, visit ClinicalTrials.gov and search the identifier NCT06799741.

Source: The National Institutes of Health

Infectious Diseases

HHS Advances Fight Against Long COVID with Patient Roundtables and New National Efforts

The U.S. Health and Human Services (HHS) Secretary Robert F. Kennedy, Jr. convened patients, caregivers, medical professionals, and advocates for two Long COVID roundtables — one centered on patient experiences and one on research. The event highlighted the Trump Administration's commitment to tackling "invisible illnesses" that impact millions of Americans.

"This was not a listening session — it was an action session," Secretary Kennedy said. "We are driving solutions to diagnose, prevent, and treat Long COVID, and we stand with the patients and families whose lives it has disrupted. Today's steps mark the start of a sustained national effort. By listening to patients and working with advocates and clinicians, we will bring invisible illnesses out of the shadows and restore hope to those affected."

Participants shared their experiences and practical recommendations on improving care and advancing research. U.S. Senators Roger Marshall (R-KS) and Todd Young (R-IN) also engaged in the discussions.

Long COVID is a distinct and multisystem condition with its own drivers, risk factors, and clinical course. It affects all ages, regions, and communities. Photo courtesy of the U.S. Department of Health and Human Services

"Long COVID has gone ignored and unaddressed for far too long. Millions of Americans are suffering from this debilitating illness, and we have failed to research ways to help these individuals make a full recovery," said Senator Marshall. "I am beyond grateful for Secretary Kennedy, the Trump administration, and the experts gathered today for their tireless efforts to take this invisible illness seriously and move beyond the status quo to address the root causes and determine an effective treatment plan."

"While the COVID-19 pandemic is over, Long COVID continues to impact millions of Americans," said Senator Young. "Today's event demonstrates the Trump Administration's commitment to the American people that more is being done to understand and address this chronic condition. I am grateful to Secretary Kennedy for making this conversation a priority and to our researchers and innovators for working diligently to support those facing these challenges."

As part of today's event, HHS announced new actions aimed at improving care for Long COVID:

- Public Awareness and Education Campaign: A forthcoming national campaign will provide patients, families, and employers with accurate, science-based information about Long COVID, its symptoms, and available resources.
- Open Source Medical Resource Platform: HHS will launch a new online hub where physicians, researchers, and health systems can share best practices and clinical insights for diagnosing and treating Long COVID.
- Agency for Healthcare Research and Quality (AHRQ) Report: "Sources of Health Insurance among Adults with Long COVID: Estimates from the Medical Expenditure Panel Survey" was released today and can be accessed here. This action was also proposed as part of the 2021 "CURES 2.0 Act," which was never passed.

Source: The U.S. Department of Health and Human Services

Infectious Diseases

NIH-supported Trial Reduces HIV Incidence by 70% in Rural Populations

Study used technology to extend reach of existing infrastructure, linking people to care

A study funded by the National Institutes of Health (NIH) reduced new HIV cases by 70% in rural Kenya and Uganda by pairing digital tools with tailored HIV services delivered by community health workers and clinicians.

This successful strategic implementation of existing healthcare infrastructure and available HIV prevention and treatment options could become a model for reducing HIV incidence in other countries, including the United States. The findings were presented today at the 33rd Conference on Retroviruses and Opportunistic Infections (CROI 2026) in Denver.

"The findings from this innovative study underscore the critical value of conducting implementation research that tests HIV prevention and treatment strategies in real world settings," said Jeffrey K. Taubenberger, MD, PhD, acting director of NIH's National Institute of Allergy and Infectious Diseases (NIAID). NIAID co-funded the study along with NIH's National Heart, Lung, and Blood Institute; National Institute of Mental Health; and National Institute on Alcohol Abuse and Alcoholism.

Despite the availability of safe and highly effective medications to prevent and treat HIV, an estimated 30,000 people in the United States and 1.3 million people globally newly acquire HIV each year. This gap exists largely because healthcare and other systems struggle to reach, engage and retain people who need HIV prevention and care.

To respond to this challenge, the longstanding Sustainable East Africa Research in Community Health (SEARCH) consortium has been testing population-level interventions designed to end the HIV epidemic and improve overall community health. Their latest trial involved a tailored approach to HIV testing, prevention and treatment implemented by existing health workers and clinicians using medications, tests and digital technology available in-country.

The trial involved 16 remote, rural communities, eight within each country. After pairing communities with similar characteristics, the study team randomly assigned one community in each pair to receive a three-part intervention designed to reduce HIV incidence, and the other community to receive standard HIV prevention and care.

The intervention had three components, which were delivered during a two-year period beginning in 2023 to people aged 15 years and older, considered adults in their communities.

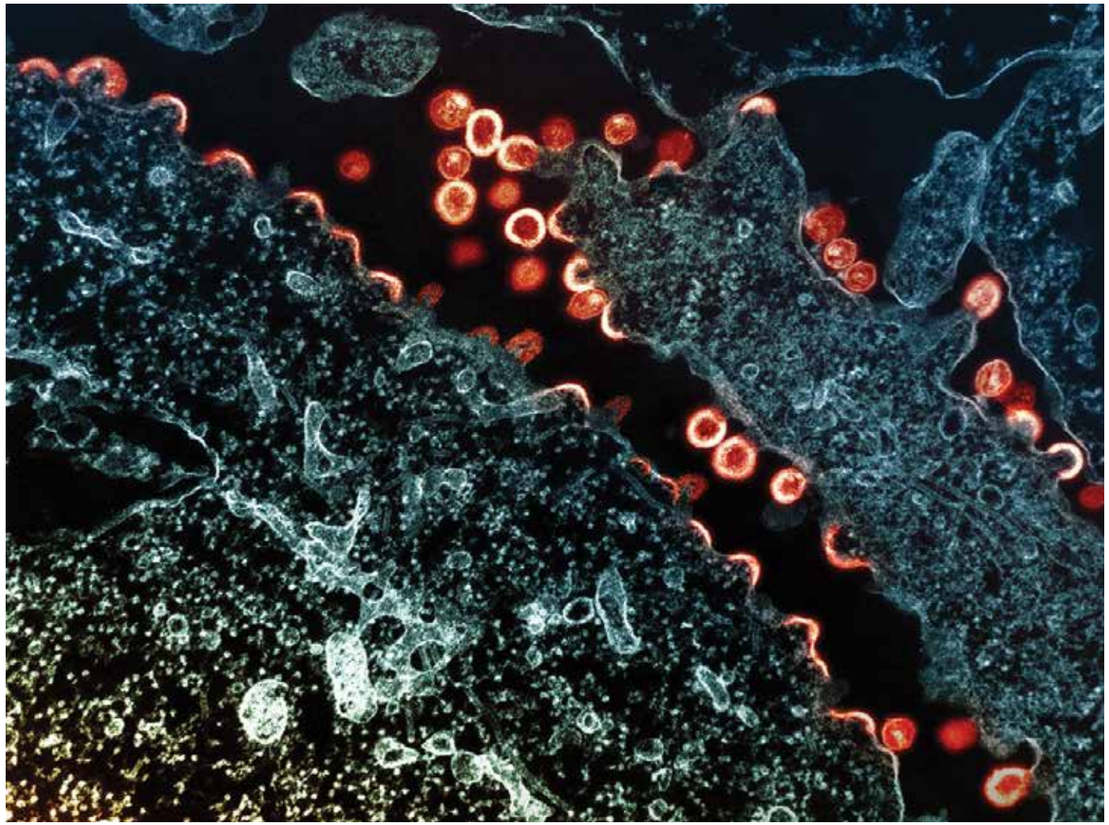
First, trained community health workers employed by the government visited each home to offer adults HIV testing. The workers referred adults who tested HIV-positive to their local health center for HIV treatment and referred adults who tested HIV-negative but said they were at risk for the virus to HIV prevention products and services.

Despite the availability of safe and highly effective medications to prevent and treat HIV, an estimated 30,000 people in the United States and 1.3 million people globally newly acquire HIV each year.

Second, healthcare providers at local health centers were trained to deliver personalized HIV prevention and care in a manner that was sensitive and responsive to the choices and preferences of their clients.

Finally, enhanced use of a ministry of health-compatible app on handheld devices linked health workers in the communities with clinicians, medical records and services in health centers, facilitating follow-up with clients and community-based delivery of prevention medications.

Two years after the intervention began, the study team measured HIV incidence among adults in the 16 participating communities. Seven of about 42,000 people in the intervention communities and 22 of about 42,000 people in the control communities had acquired HIV in recent months, indicating that



Transmission electron micrograph of HIV-1 virus particles (red/yellow) budding and replicating from a segment of a chronically infected H9 cell (blue/teal). Particles are in various stages of maturity; arc/semi-circles are immature particles that have started to form but are still part of the cell. Immature particles slowly change morphology into mature forms and exhibit the classic "conical or spherical-shaped core." Image captured at the NIAID Integrated Research Facility (IRF) in Fort Detrick, Maryland. Photo courtesy of the National Institute of Allergy and Infectious Diseases

the intervention strategy reduced HIV incidence by 70%. This finding was consistent across age, sex and country.

To better understand what drove this decrease, the investigators measured the percentage of adults without HIV who had used a form of biomedical HIV prevention — either pre-exposure prophylaxis (PrEP) or post-exposure prophylaxis (PEP) — in the past six months.

They found that 0.41% of adults in the control communities and 1.67% in the intervention communities had recently used PrEP or PEP, meaning the intervention strategy drove a four-fold increase in prevention uptake. This was true in both countries among men and women, regardless of age.

In addition, the investigators measured the percentage of people with HIV who knew their status, the percentage diagnosed with HIV who were taking antiretroviral therapy (ART), and the percentage taking ART who were virally suppressed. The study team found high levels of HIV treatment and viral suppression in both the intervention and control groups, suggesting that prevention uptake in the setting of high levels of effective treatment drove the decrease in HIV incidence.

Most community health workers, health care providers and study participants reported finding the intervention easy to implement, even though very few community health workers had experience using a smartphone or delivering HIV services before the study took place.

Source: The National Institutes of Health

Longer Breastfeeding Linked to Blood-pressure Lowering Effects of Certain Infant Gut Bacteria

Nursing for at least six months may spur beneficial gut bacteria connected to better heart health years later

By Charlotte Pratt, PhD, RD, Acting Chief, Clinical Applications and Prevention Branch, National Heart, Lung, and Blood Institute

An observational study supported by the National Institutes of Health (NIH) found that infants who had more diverse bacteria in their gut had lower childhood blood pressure, and this protective association was stronger if they were breastfed for at least six months. The findings published in the Journal of the American Heart Association.

For the research, investigators reviewed data from 526 children enrolled in a prospective study in Denmark. They looked for connections between infant gut bacteria, which can be influenced by nutrition and supports a variety of health functions, and childhood blood pressure. To assess this, they collected fecal samples to analyze bacteria in the infants' intestines during their first week, month, and year of life. Three and six years later, they measured the children's blood pressure.

The researchers found children with more diverse gut bacteria at one month had lower blood pressure six years later. They then assessed the influence of breastfeeding, which was measured in this study for durations of at least six months. They discovered that among children breastfed for at least six months, the blood-pressure lowering effect of having more diverse bacteria in their gut was even stronger. Specifically, those with a greater diversity of gut bacteria throughout the first month of life had systolic blood pressure that was about 2 mm Hg lower six years later if they were breastfed for at least six months.

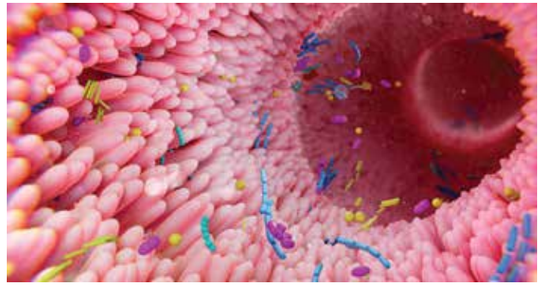


Photo courtesy of the National Institute of Child Health and Human Development

Researchers believe there may be several reasons for these associations. Certain gut bacteria have evolved specialized biologic machinery that allows them to convert otherwise indigestible carbohydrates in breast milk into calories and substances that can be used by the body. Specific Bifidobacterium species, including B. infantis, are superstars when it comes to breaking down these carbohydrates and turning them into short-chain fatty acids that may influence blood pressure and support cardiovascular health.

In infants who are not breastfed, bacteria that do not have breast milk carbohydrates to feed on may instead break down carbohydrates that line the intestines. This could result in a condition called a "leaky gut," where bacteria and fat could enter the bloodstream. A leaky gut has been linked to inflammation and increased blood pressure in adults.

Additionally, the researchers found that some types of bacteria, including H. pylori, were present in some infants and these bacteria were linked to increased blood pressure years later. H. pylori, which can be passed from a mother to child, can create persistent levels of low inflammation and may influence a "leaky gut."

To make participants in the study as comparable as possible, the researchers accounted for a mother's medical history, their diet during pregnancy, pregnancy complications, when and how a child was born, and how long they were breastfed.

About 4% to 7% of children worldwide have high blood pressure, which can start when the fetus develops in the womb. These rates have doubled since 2020, which is why researchers are studying factors that may offset these risks and improve cardiovascular health.

The study was supported by the National Heart, Lung, and Blood Institute (NHLBI) grant K01HL141589.

Source: The National Heart, Lung, and Blood Institute

Many Genes in Male and Female Placentas Expressed Differently

NIH findings may lead to insights on pregnancy complications, adult health

Fasil Tekola-Ayele, PhD, of the NIH's Eunice Kennedy Shriver National Institute of Child Health and Human Development

The genes of male and female placentas have marked differences in how they are expressed, according to a study by researchers at the National Institutes of Health (NIH) and other institutions. These differences involve the presence or absence of tags on DNA known as methyl groups, which switch genes on or off without changing their structure. Understanding these DNA methylation patterns may inform future research on the higher risk for pregnancy complications involving male fetuses, such as stillbirth and prematurity, as well as later life health conditions that occur in adults who were born after a complicated pregnancy.

Researchers analyzed male and female placental samples from a larger study for differences in their methylation patterns, and found differences in gene activity between male and female placentas that may play a role in birthweight and adult diseases.

The study identified 2,497 previously unreported DNA sites that had different methylation patterns for males and females. Of these and more than 2,500 sites that had also been identified by previous studies, 66.9% of large increases in methylation occurred in DNA from male placentas and 33.1% from female placentas. Increases in methylation in male placentas was linked with greater neonatal size whereas those in females was linked with greater placental size.

Some increases in methylation found in male placentas were located near the CCDC6 gene. Lower activation of CCDC6 has been linked with preterm birth in previous studies.

Photo credit magicmine, courtesy of the National Institute of Child Health and Human Development

Higher methylation near the FNDC5 gene was associated with lower expression of the gene in male placentas but not in female placentas. FNDC5 is involved with the manufacture of irisin, which protects the placenta from damage by reactive oxygen molecules and insulin resistance (cells' difficulty in using insulin to lower blood sugar.) Lower irisin levels have been associated with the pregnancy-related high blood pressure disorder, known as preeclampsia.

Variations in the genes ATP5MG and FAM83A, expressed in female placentas, have been associated with asthma, hay fever, eczema (dry, itchy, inflamed skin) and higher risk for breast cancer later in life.

Genetic factors influence the health differences between males and females, from before birth to later in life. Male fetuses grow faster than female fetuses and their pregnancies are more likely to be complicated by such conditions as preeclampsia (a hypertensive disorder of pregnancy), failure to grow at an adequate rate, and preterm birth. They also are more likely to die in the year after birth. Dysfunction of the placenta underlies many pregnancy complications and is thought to set the stage for male and female health differences that occur later in life. Variations in methylation patterns are thought to underlie many of these differences.

Source: The National Institutes of Health

Blood Pressure Patterns in Early Pregnancy Tied to Hypertension Risk up to 14 Years Later

NIH-supported study reveals new risk group for future high blood pressure, heart disease

Blood pressure patterns observed in the first half of pregnancy, even among women without hypertensive disorders of pregnancy (HDP), can identify women at greater risk of developing hypertension up to 14 years after giving birth. The new findings are from a large observational study supported by the National Institutes of Health (NIH).

High blood pressure is a risk factor for heart disease, the leading cause of death. This study identified a new, previously undefined risk group of postpartum women who are not currently recognized as being at high risk for future hypertension and cardiovascular disease because they did not develop HDP during pregnancy. HDP includes serious complications such as preeclampsia and gestational hypertension during pregnancy and are known to increase the risk of heart disease later in life. When the history of HDP was combined with women's early pregnancy blood pressure patterns, these data together provide a new and improved tool for risk assessment.

The study followed 174,774 women who received prenatal care at Kaiser Permanente Northern California between 2009 and 2019. None of these women had hypertension, kidney, liver, or heart disease, or a history of preeclampsia before pregnancy. Researchers tracked their health records up to 14 years after delivery to identify new cases of hypertension.

Photo courtesy of the U.S. Centers for Disease Control and Prevention

The research found that women who showed certain blood pressure patterns during the first 20 weeks of pregnancy were more likely to develop hypertension later in life. Six distinct risk groups of blood pressure trajectory were identified, ranging from ultra-low to elevated-stable patterns. Women with elevated-stable blood pressure patterns were at the highest risk.

This study shows that blood pressure trajectories during early pregnancy can stratify this risk, even for women without HDP. By identifying women at higher risk, healthcare providers can offer targeted surveillance and early interventions, potentially preventing future heart problems.

Detailed Results:

- The study showed that these blood pressure patterns could differentiate risk levels among women with and without HDP.
- Among groups of women who did not develop HDP, those with higher risk blood pressure patterns — including elevated-stable patterns — during early pregnancy were still 11 times more likely to develop hypertension years later than those women with less risky blood pressure patterns.

Researchers suggest that this previously unrecognized risk group may warrant closer monitoring after pregnancy. Additionally, they suggest that early pregnancy blood pressure trajectories may improve predictions of cardiovascular disease risk in women. The findings appeared in the journal Hypertension.

The study was supported by the National Heart, Lung, and Blood Institute (NHLBI), part of the NIH, through R01 HL145808 and R01 HL145808-02S1.

Source: The National Heart, Lung, and Blood Institute

Excess Weight Gain in First Trimester Associated with Fetal Fat Accumulation

Findings from NIH study suggest early intervention may prevent adult obesity associated with heavier birthweight

By Katherine Grantz, MD, MS, of the NICHD Epidemiology Branch and senior author of the study

Fetuses of pregnant people who gained excess weight in the first trimester of pregnancy show signs of excess fat distribution in the upper arm and in the abdomen, according to a study by researchers at the National Institutes of Health (NIH).

These findings may inform efforts to prevent excessive weight gain early in life, a risk factor for adult obesity and related conditions, such as heart disease, high blood pressure and diabetes. The study, conducted by researchers at NIH's Eunice Kennedy Shriver National Institute of Child Health and Human Development and other institutions, appears in the *American Journal of Clinical Nutrition*.

Photo courtesy of the Office on Women's Health

The authors analyzed data from an earlier study of more than 2,600 singleton pregnancies, which included information on maternal weight before and during pregnancy and three-dimensional (3D) ultrasound scans (up to five) throughout pregnancy.

The authors found that pregnant people with excessive weight gain — defined as more than 2 kilograms (about 4.4 pounds) in the first trimester — had fetuses with larger abdominal circumference and abdominal area and larger fetal arm fat thickness, when compared to pregnant people with adequate weight gain. Fetuses from the excessive weight gain group continued to have greater arm thickness and abdominal measurements through the end of pregnancy, even when weight gain was not considered excessive during the second and third trimesters. In contrast, most previous studies have not examined fetal 3D measures during pregnancy and have only linked total weight gain across pregnancy, not just in the first trimester, with birthweight.

Photo credit Andrey Popov, Getty Images, courtesy of the National Institutes of Health

The authors wrote that their findings suggest that the timing of weight gain, instead of total weight gain, could be important for developing efforts to prevent excess fetal size and reduce the risk of heart disease and other conditions later in life.

Reference

Wagner KA et al. Relationship between gestational weight gain with fetal body composition and organ volumes in the NICHD Fetal 3D Study: A prospective pregnancy cohort. *The American Journal of Clinical Nutrition* (2025)

Source: The National Institutes of Health

Nephrology

Behavioral Intervention Decreases How Much Pain Affects Daily Activities in People with Dialysis-Dependent Kidney Failure

Among people with dialysis-dependent kidney failure, a form of psychological therapy called pain coping skills training reduced how much pain got in the way of their daily lives, also known as pain interference. The clinical trial, funded by the National Institutes of Health (NIH), found that training people on how to manage pain reduced the extent to which pain affected their work and social activities, mood, and relationships.

The pain coping skills training, which was adapted for people undergoing long-term dialysis, also improved other effects of pain, including the intensity of pain, depression, anxiety, and quality of life. Pain coping skills training is an approach widely used for chronic pain, but it had not previously been tested for people treated with dialysis.

"Very few interventions have been shown to improve the quality of life for people with end-stage kidney disease being treated with dialysis," said Dr. Paul Kimmel, program director at NIH's National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), which led the study. "For example, opioids, which have been a main treatment for pain in this population, have side effects that can be more pronounced in the presence of kidney failure, making pain management challenging."

More than 808,000 people in the United States are living with end-stage kidney disease, and 68% of them receive treatment with dialysis. People with dialysis-dependent kidney disease often experience chronic pain yet have limited pain treatment options. Furthermore, sticking to pain treatment plans can be difficult while undergoing dialysis.

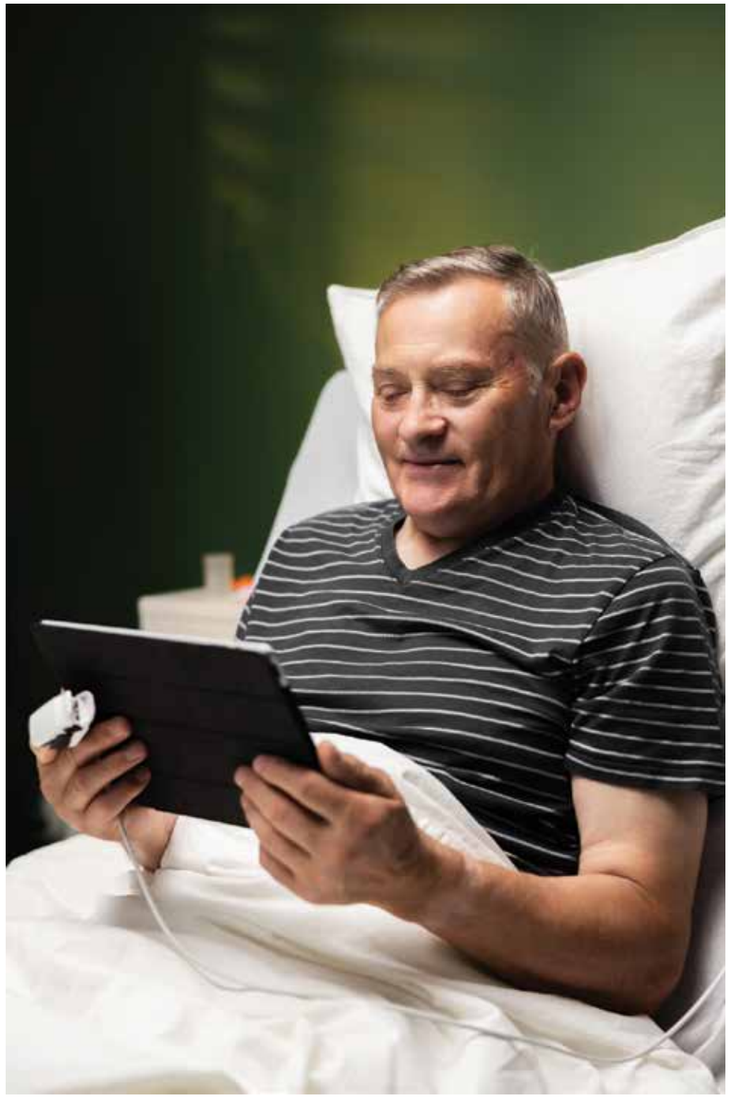
The study research group, known as the Hemodialysis Opioid Prescription Effort (HOPE) consortium, thus aimed to develop a behavioral intervention that would decrease the perception of pain, improve quality of life, and reduce opioid use among hemodialysis populations. This study is the largest randomized controlled trial to show that a nonpharmacologic pain intervention provides benefits to people with end-stage kidney disease being treated with dialysis.

The multi-center trial enrolled 643 adults being treated with maintenance dialysis for end-stage kidney disease and experiencing chronic pain. About half of participants were assigned to the pain coping skills training intervention, while the other half received usual clinical care with no trial-based intervention. The pain coping skills training comprised 12 weeks of virtual, one-on-one, coach-led sessions to teach coping skills for chronic pain, enhance self-efficacy (the belief in one's ability to achieve goals), and reduce pain-related sleep difficulties, anxiety, and stress.

The intervention included instruction, modeling of skills, guided practice, and experiential training. The coach-led sessions were followed by 12 weeks of automated interactive voice response sessions to refresh the newly acquired skills.

At 12 weeks, 51% of people in the pain coping skills training group reported a reduction in pain interference vs. 37% in the usual care group, and the benefit continued throughout the 24-week intervention period. The difference between the two groups diminished at week 36, 12 weeks after the intervention ended. Researchers believe people receiving pain coping skills training may need continued reinforcement to see additional or long-term benefit. The pain coping skills training also improved pain-related outcomes of pain severity, depression, anxiety, quality of life, and pain catastrophizing (a negative mental and emotional response to anticipated or actual pain that is associated with poor pain outcomes).

Photo courtesy of the National Library of Medicine



An NIH-funded clinical trial found that, among people with dialysis-dependent kidney failure, pain coping skills training (PCST) reduced how much pain affected their work and social activities, mood, and relationships, also known as pain interference. Photo credit Adobe Stock, courtesy of the National Institute of Diabetes, Digestive, and Kidney Diseases

The study results indicate that pain coping skills training may be an appealing alternative or complement to pain medications.

Although the effect of the pain coping skills training on the overall cohort was modest, its high acceptability, tolerability, and safety and its observed benefits to pain, anxiety, depression, and quality of life support further research on developing nonpharmacologic, non-invasive strategies for managing pain in dialysis populations.

"Future work will focus on how to prolong the favorable effects of pain coping skills training and how to broadly implement this intervention in clinical practice," said lead author Dr. Laura M. Dember, nephrologist and clinical investigator at the University of Pennsylvania Perelman School of Medicine, Philadelphia. "Based on the successful results of this study, our hope is that this intervention can be made available broadly to patients receiving dialysis."

The study, the Hemodialysis Opioid Prescription Effort (HOPE) Consortium Trial to Reduce Pain and Opioid Use in Hemodialysis, was funded by the Helping to End Addiction Long-term Initiative, or NIH HEAL Initiative, an NIH-wide effort that seeks to speed scientific solutions to the overdose epidemic, including opioid and stimulant use disorders, and the crisis of chronic pain.

Source: The National Institute of Diabetes and Digestive and Kidney Diseases

NIH to Lead Implementation of National Plan to End Parkinson's Act

Open call for participants to serve on Parkinson's Advisory Council

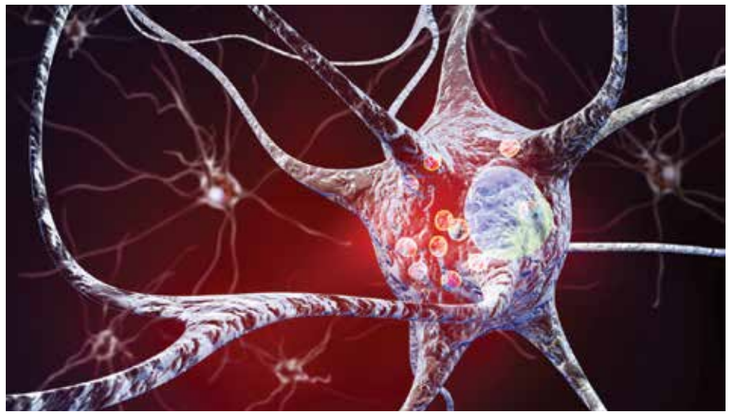
With support from the U.S. Department of Health and Human Services (HHS) Office of the Assistant Secretary for Health (OASH), the National Institutes of Health (NIH) is leading the implementation of the Dr. Emmanuel Bilirakis and Honorable Jennifer Wexton National Plan to End Parkinson's Act (P.L. 118-66), which was signed into law on July 2, 2024. This follows a delegation of authority from the Secretary of the Department of Health and Human Services to the NIH Director.

The act establishes a Federal Advisory Council on Parkinson's Research, Care, and Services and calls for the creation and regular updating of a national plan to prevent, diagnose, treat, and cure Parkinson's, ameliorate symptoms, and slow or stop progression. In addition to Parkinson's disease, the national plan will also target other neurodegenerative Parkinsonisms, including multiple system atrophy, corticobasal degeneration, progressive supranuclear palsy, and Parkinson's-related dementia.

The goals of the act are to coordinate Parkinson's-related research and services across federal agencies; speed the development of safe and effective treatments; improve early diagnosis; facilitate coordination of care and treatment; reduce the impact of Parkinson's on the physical, mental, and social health of individuals living with Parkinson's and their caregivers and families; and increase international coordination.

In anticipation of implementing this act, NIH is seeking nominations for individuals to serve on the Federal Advisory Council on Parkinson's Research, Care, and Services that will provide advice on Parkinson's-related issues, including recommendations for priority actions to be included in the national plan. The council will include two patient advocates, including one individual who is living with young-onset PD; a family caregiver; a healthcare provider; two biomedical researchers with Parkinson's related expertise; a movement disorders specialist who treats people with Parkinson's; a dementia specialist who treats people with Parkinson's; and two representatives from Parkinson's-related nonprofit organizations. Additionally, the council will have representatives from 13 federal agencies that are involved in Parkinson's research, clinical care, or care services. The council will be co-chaired by the director of the NIH's National Institute of Neurological Disorders and Stroke and the associate deputy director for the Office of Science and Medicine for HHS' OASH.

People with Parkinson's disease also lose the nerve endings that produce norepinephrine, the main chemical messenger of the sympathetic nervous system, which controls many functions of the body, such as heart rate and blood pressure. Graphic courtesy of the National Institutes of Health



Stock image of Parkinson's disease nerve cells, courtesy of the California Institute for Regenerative Medicine

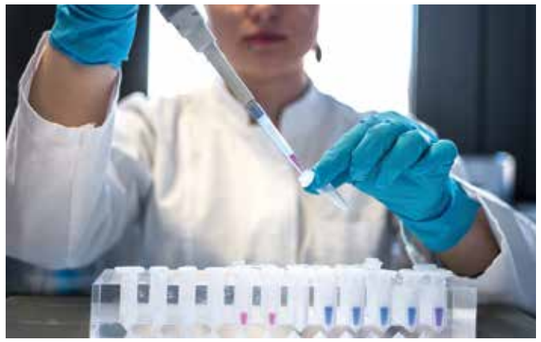
More information about the act as well as the nomination process can be found at: https://www.ninds.nih.gov/current-research/trans-agency-activities/national-plan-end-parkinsons

Source: The National Institute of Neurological Disorders and Stroke

NIH-funded Study Identifies Potential New Stroke Treatment

Preclinical study in rodents suggests that uric acid is ready for human clinical testing

In a preclinical study, rodents treated with uric acid showed improved long-term outcomes after acute ischemic stroke. The findings suggest that the treatment may work as an add-on therapy to standard stroke treatments in humans. The study was funded by the National Institutes of Health (NIH) and published in *Stroke*.



Researchers have identified uric acid as a potential therapy to enhance recovery from acute ischemic stroke using a new method for conducting preclinical animal research. Photo credit Julia Koblitz, Unsplash, courtesy of the National Institute of Neurological Disorders and Stroke

Led by Enrique Leira, MD, and Anil Chauhan, PhD, at the University of Iowa, Iowa City, researchers used a well-established rodent model of stroke that closely simulates stroke in humans.

They administered intravenous uric acid or saline control and monitored animals' recovery over one month. Behavioral and neurological assessments, including MRI scans, were used to evaluate the treatment's effects.

Mice treated with uric acid had better sensorimotor function — the primary outcome measure — 30 days after stroke. More animals in the uric acid group also survived their stroke compared to control animals. However, some secondary outcome measures, such as brain damage, were not reduced.

The research teams used equal numbers of male and female animals and studied older, young, and obese mice, as well as rats with hypertension. Uric acid was efficacious across all groups, suggesting that the treatment could potentially perform well in human trials, including in people with stroke comorbidities.

Ischemic stroke, a leading cause of disability and death in the United States, occurs when a blood clot or other blockage in an artery cuts off blood supply to the brain. Strokes are treated with medications or surgery aimed to break up clots and restore blood flow to affected brain areas.

These therapies are highly effective, but not all people fully recover. Using additional treatments that protect brain tissue from damage, either immediately before or during clot removal, could boost the effects of standard treatments and greatly improve recovery in patients.

The study was part of the NIH's Stroke Preclinical Assessment Network (SPAN), a rigorous, transparent approach to preclinical research that mimics clinical trials.

SPAN applies standard clinical practices, like randomization and blinded analysis, to animal studies, with the goal of finding agents that are likely to succeed in clinical trials.

Recently, the network tested six promising stroke treatments and found one, uric acid, that showed efficacy. The current study described the results of this trial.

The study was supported by the National Institute of Neurological Disorders and Stroke (NINDS) (U01NS113388, U24NS113452) and the National Heart Lung and Blood Institute (R35HL139926).

Reference

Patel, R.B., and Kumskova, M., et al. "Uric acid stroke cerebroprotection transcended sex, age, and comorbidities in a multicenter preclinical trial." *Stroke*. March 17, 2025. DOI: 10.1161/STROKEAHA.124.048748.

Source: The National Institute of Neurological Disorders and Stroke

ARPA-H Launches Program to Restore Brain Function and Return Patients to Independence

Development of regenerative grafts would aid stroke and injury victims, ease strain on families and the health care system, and position the U.S. as a leader in brain repair technology

The Advanced Research Projects Agency for Health (ARPA-H), an agency within the U.S. Department of Health and Human Services (HHS), today unveiled its groundbreaking Functional Repair of Neocortical Tissue (FRONT) program, a transformative initiative to restore brain function and position the U.S. as the global leader in brain repair technology. The FRONT program aligns directly with the priorities set by President Trump and Secretary Robert F. Kennedy, Jr., demonstrating a strong commitment to innovation, public health, and the economic well-being of the American people.

"Millions of Americans are living with the damage caused by strokes and traumatic brain injuries. Current treatments are not enough. ARPA-H hopes to deploy regenerative medicine to transform the treatment of neurological diseases and relieve the suffering," said HHS Deputy Secretary Jim O'Neill.

The neocortex, the largest part of the brain, is critical for sensory perception, motor control, and decision-making. Damage to this area — due to conditions like stroke, traumatic injury, or neurodegeneration, such as Alzheimer's disease — has long led to irreversible damage, leaving individuals dependent on costly therapies or caregivers. The FRONT program aims to change that, using cutting-edge neurodevelopmental principles and stem cell technology to regenerate brain tissue and restore lost functions.

"Every year, millions of American families bear the overwhelming costs of brain damage, a crisis that drains the U.S. health care system by over a trillion dollars annually," said Jason Roos, PhD, ARPA-H Acting Director. "With the leadership of President Trump and Secretary Kennedy, the FRONT program is set to change the future of brain repair, providing not only groundbreaking solutions for patients but also driving economic benefits for the nation."

The FRONT program supports several key priorities, including:

- Combating Chronic Disease: FRONT will work to develop a curative therapy for over 20 million U.S. adults suffering from chronic neocortical brain damage caused by stroke, neurodegeneration, and trauma, providing life-changing treatments for these individuals.
- Economic Growth and Innovation: By working to restore brain function, FRONT is projected to save the U.S. economy an estimated $800 billion annually, while recovering lost taxable income from individuals currently unable to contribute due to severe brain damage.
- Veteran and Military Support: FRONT will prioritize the development of effective therapies for traumatic brain injuries, a leading cause of disability among military personnel. This initiative will provide direct support to our nation's servicemen and women, ensuring they receive the care they deserve for their sacrifice.
- Societal Impact: FRONT moves beyond costly, limited therapies like physical and speech rehabilitation, aiming to restore vital brain functions. This program will provide new hope to millions who have suffered severe brain damage and now rely on caregivers for daily living.

"No technology exists to repair damaged tissue and fully restore lost function," says Jean Hebert, PhD, FRONT's Program Manager. "This will enable millions of individuals with what is currently considered permanent brain damage to regain lost functions, such as motor control, vision, and speech."

FRONT's commitment to ethics and responsible development is paramount. The program will rely exclusively on adult-derived dedifferentiated stem cells.

The FRONT program spans five years, with strict performance metrics and a focus on preparing for human clinical trials. ARPA-H will solicit proposals under its Innovative Solutions Opening (ISO) in two key areas: graft tissue generation and engraftment procedures for functional brain recovery. ARPA-H encourages collaboration among experts across disciplines to meet the program's ambitious goals.

The FRONT program is a bold step forward in America's commitment to leadership in health and innovation — delivering real solutions to the nation's most pressing challenges, while ensuring the well-being of every citizen.

Source: U.S. Department of Health and Human Services

New 4D Brain Map Reveals Potential Early Warning Signs of Multiple Sclerosis

NIH study reveals key players underlying disease onset and repair

Using an animal model of multiple sclerosis (MS), researchers at the National Institutes of Health (NIH) have created a four-dimensional brain map that reveals how lesions similar to those seen in human MS form. These findings, published in Science, provide a window into the early disease state and could help identify potential targets for MS treatments and brain tissue repair.

The researchers, led by postdoctoral fellow Jing-Ping Lin, PhD, and senior investigator Daniel S. Reich, MD, PhD, both at NIH's National Institute of Neurological Disorders and Stroke (NINDS), combined repeated MRI imaging with brain-tissue analysis, including gene expression, to track the onset and development of MS-like lesions. They uncovered a new MRI signature that can help detect brain regions at risk for damage weeks before any visible lesions occur. They also identified "microenvironments" within affected brain tissue based on observed patterns of neural function, inflammation, immune and support cell responses, gene expression, and levels of damage and repair.

"Identifying the early events that occur after inflammation and teasing apart which are reparative versus which are damaging, can potentially help us identify MS disease activity sooner and develop treatments to slow or stop its progression," said Dr. Reich.

MS is caused by the body's immune system attacking the protective covering of nerve fibers, called myelin. This leads to inflammation, loss of myelin, and formation of "lesions" or "plaques" within the brain tissue. Most of what is known about

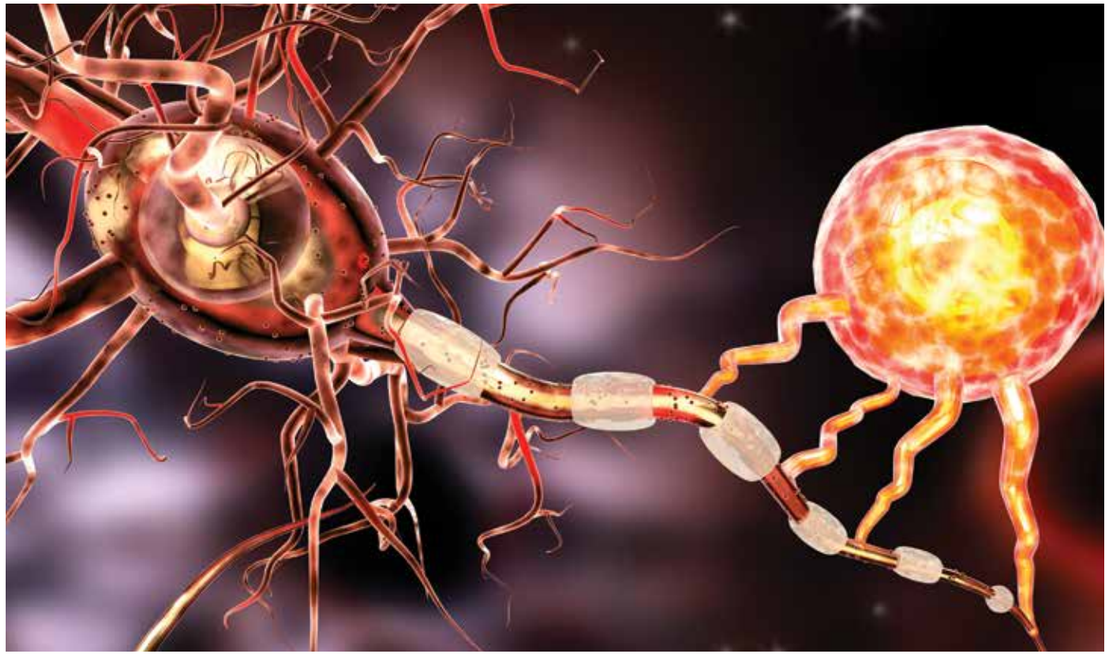


Illustration of an oligodendrocyte, right, creating a myelin coating around a nerve cell extension. Damage to myelin can affect communication between nerve cells. Photo credit Ralwel/iStock/Thinkstock, courtesy of the National Institutes of Health

The ability to detect aggressive forms of MS would enable researchers to test and assess potential therapies. Photo credit andresr / E+ via Getty Images, courtesy of the National Institutes of Health

MS progression has come from analysis of postmortem human brain tissue, usually obtained decades after the initial onset of disease. This means missing early changes that occurred prior to the onset of symptoms.

To mimic the conditions of the human brain, the researchers opted not to use a mouse model for MS, instead advancing a model that uses the marmoset, a nonhuman primate. Compared to mouse brains, marmoset and human brains have a higher ratio of white matter (the "wires" of the brain) to gray matter (neuronal cell bodies). The marmoset model creates multiple lesions that closely resemble those seen in human MS and that can be tracked in real time using MRI imaging. Because these lesions can be induced experimentally, the model offers a look at the earliest stages of inflammation and immune responses that lead to MS-like demyelination.

One key player identified was a specific type of astrocyte, one of the support cell types in the brain, that turns on a gene called SERPINE1 or plasminogen activator inhibitor-1 (PAI1). They found SERPINE1-expressing astrocytes in vulnerable brain borders before visible damage occurs, clustering near blood vessels and the fluid-filled ventricles of the brain and signaling future areas of lesion development. These astrocytes also appeared to influence the behavior of other cells near the lesion area, including the ability of immune cells to enter the brain and contribute to inflammation, as well as the precursor cells involved in myelin repair.

Given that SERPINE1-expressing astrocytes accumulated at the edges of growing lesions, where damage happens but healing also begins, their potential dual role in coordinating signals that could lead to either tissue repair or further damage was an unexpected wrinkle that will require further study. It's possible that the earliest responses could be a part of a protective mechanism that becomes overwhelmed as the injury progresses. It's also possible that the same mechanism could itself become disease-causing.

"If one imagines a fort under siege, initially the walls might hold off the attack," said Dr. Reich. "But if those walls are breached, all the defenses inside can be turned against the fort itself."

These findings may also have implications for brain injuries beyond what is seen in MS. While there are different types of focal brain injuries, including traumatic brain injury, stroke, inflammation, and infection, there is a finite number of ways the tissue can react to injury. In fact, many of the reactions seen here to inflammation, stress, and tissue damage are likely to be common across injury types, and the brain map created in this study can act as a resource to allow comparisons to be made in a more human-like context.

The scientific teams are building a new model of a different autoimmune condition affecting brain borders. They are also looking to expand their data set to include aged animals, which could help improve our understanding of progressive MS, a disease state with a significant and unmet therapeutic need.

This study was supported in part by the Intramural Research Program at the NIH with additional support from the Dr. Miriam and Sheldon G. Adelson Medical Research Foundation and the National Multiple Sclerosis Society.

Source: The National Institute of Neurological Disorders and Stroke

Neurology

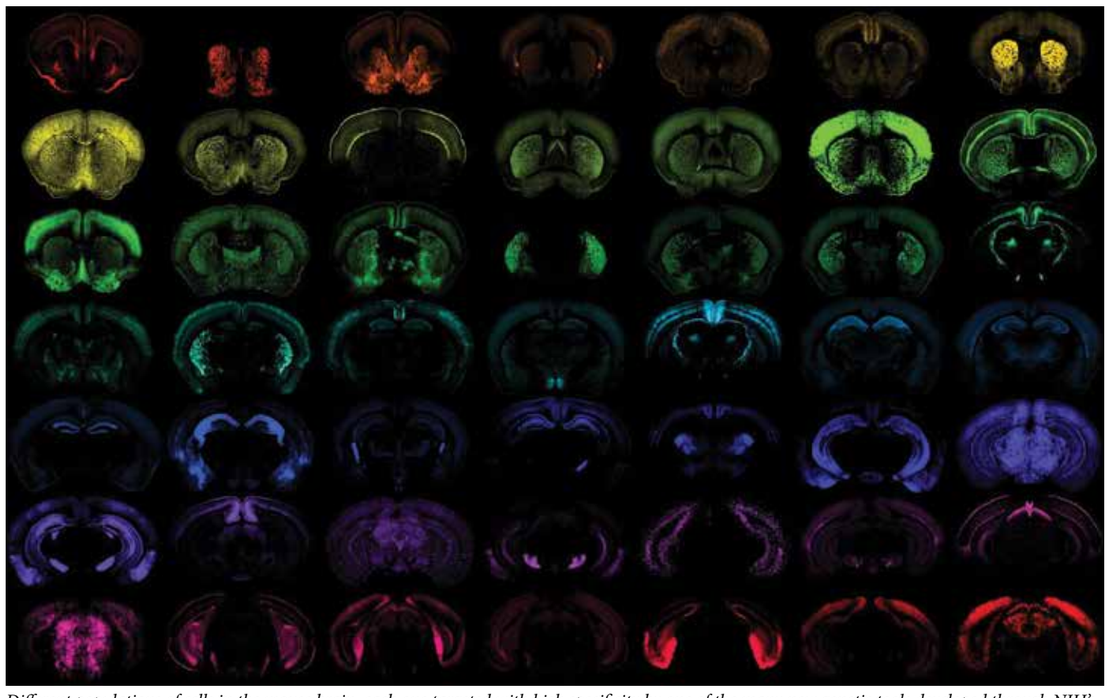
Scientists Design Gene Delivery Systems for Cells in the Brain and Spinal Cord

NIH-funded breakthrough could enable targeted therapies for many neurological disorders

Research teams funded by the National Institutes of Health (NIH) have created a versatile set of gene delivery systems that can reach different neural cell types in the human brain and spinal cord with exceptional accuracy. These delivery systems are a significant step toward future precise gene therapy to the brain that could safely control errant brain activity with high precision. In contrast, current therapies for brain disorders mostly treat only symptoms.

The new delivery systems carry genetic material into the brain and spinal cord for targeted use by specific cell types. This platform has the potential to transform how scientists can study neural circuits. It provides researchers with gene delivery systems for various species used in research, without the need for genetically modified, or transgenic, animals. Examples include illuminating fine structures of brain cells with fluorescent proteins and activating or silencing circuits that control behavior and cognition.

"Imagine this new platform as a delivery truck dropping off specialized genetic packages in specific cell neighborhoods in the brain and spinal cord," said John Ngai, Director of the NIH's Brain Research Through Advancing Innovative Neurotechnologies® Initiative, or The BRAIN Initiative®. "With these delivery systems, we can now access and manipulate specific cells in the brain and spinal cord — access that was not possible before at this scale."



Different populations of cells in the mouse brain, each one targeted with high specificity by one of the many new genetic tools developed through NIH's The BRAIN Initiative Armamentarium for Precision Brain Cell Access. Photo credit the Allen Institute, courtesy of the National Institutes of Health

The new delivery tools, which use a small, stripped-down adeno-associated virus (AAV) to deliver DNA to target cells, can be broadly applied across many species and experimental systems, including small tissue samples removed during human brain surgeries.

The delivery systems have been tested, or validated, in intact living systems, which is an important step for introducing new tools for widespread use. The newly published toolkit includes:

- Dozens of delivery systems that selectively target key brain cell types, including excitatory neurons, inhibitory interneurons, striatal and cortical subtypes, brain blood vessel cells, and hard-to-reach neurons in the spinal cord that control body movement and are damaged in several neurological diseases, such as amyotrophic lateral sclerosis (ALS) and spinal muscular atrophy
- Computer programs powered by artificial intelligence (AI) that can identify genetic "light switches," known as enhancers, that turn genes on in specific brain cell types, using data from many different species — cutting considerable time and effort for scientists looking for these genetic switches.

Spinal cord injury clinical trial patient Kris Boesen. Photo courtesy of the California Institute for Regenerative Medicine

Overall, this collection of research tools will significantly accelerate understanding of the human brain. Importantly, the toolkit enables access to specific brain cell types in the prefrontal cortex, an area that's critical for decision-making and uniquely human traits.

With other tools in the collection, scientists can better study individual cells and communication pathways known to be affected in several neurological diseases. These include seizure disorders, ALS, Parkinson's disease, Alzheimer's disease, and Huntington's disease — as well as various neuropsychiatric conditions.

AAV-based treatments are already approved for some conditions, such as spinal muscular atrophy for which a 2016 approval of a gene therapy known as Zolgensma transformed the lives of infants and young children who once faced severe disability or early death.

These delivery systems are a significant step toward future precise gene therapy to the brain that could safely control errant brain activity with high precision. In contrast, current therapies for brain disorders mostly treat only symptoms.

The new collection of gene delivery resources lays the groundwork for more precise treatments that target only affected cells in the brain, spinal cord, or brain blood vessels.

The toolkit is available at distribution centers including Addgene, a global supplier of genetic research tools. This collection of publications offers researchers standard operating procedures and user guides for these tools.

The work is supported by the NIH's Brain Research Through Advancing Innovative Neurotechnologies® Initiative, or The BRAIN Initiative®. Funding issued less than four years ago launched a large-scale, team-run project to design new molecular tools that can be useful to many research laboratories.

The Armamentarium for Precision Brain Cell Access aims to develop precise and reproducible access to cells and circuits in experimental research models of the brain and spinal cord. The large-scale project brings together experts in the field of molecular biology, neuroscience, and artificial intelligence (AI).

The eight papers appear in the May 21 issue of the journals Neuron, Cell, Cell Reports, Cell Genomics, and Cell Reports Methods.

Grants: UF1MH130701, UH3MH120096, U24MH133236, UF1MH128339, UM1MH130981, R01MH123620, U19MH114830, P510D010425, U420D011123, S10MH126994, UH3MH120094, UF1MH130881, F30DA053020, R01FD007478, U01AG076791, R35GM127102, RF1MH114126, UH3MH120095, RF1MH121274, R01MH113005, UH3MH120095

Source: The National Institutes of Health

Neurology

Scientists Develop High-Performance MRI Scanner in Effort to Define Microscopic Brain Structures

Next-generation system noninvasively images tiny nerve structures disrupted in brain disorders

A scientific team supported in part by the National Institutes of Health (NIH) has developed a new, ultra-high-resolution brain imaging system that can reconstruct microscopic brain structures that are disrupted in neurological and neuropsychiatric brain disorders. The new system is a significant advance over conventional magnetic resonance imaging (MRI) scanners that cannot visualize these tiny but clinically important structures.

The system, called the Connectome 2.0 human MRI scanner, overcomes a significant hurdle for neuroscientists: being able to bridge different brain regions and probe tiny structures necessary to define the "connectome," the complex matrix of structural connections between nodes in the nervous system, and to do it noninvasively in living humans.

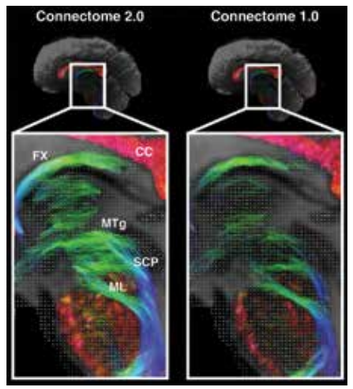
"This research is a transformative leap in brain imaging — pushing the boundaries of what we can see and understand about the living human brain at a cellular level," said John Ngai, Ph.D., Director of NIH's Brain Research Through Advancing Innovative Neurotechnologies® Initiative, or The BRAIN Initiative®. "The new scanner lays essential groundwork for the BRAIN CONNECTS program's ultimate goal of developing a wiring diagram for the human brain."

The scanner is innovative in two major ways: it fits snugly around the heads of living people, and it has many more channels than typical MRI systems. These advances greatly increase the signal-to-noise ratio of the system, providing much sharper images of very small biological brain structures than previously possible.

These technical upgrades will enable scientists to map human brain fibers and cellular architecture down to nearly single-micron precision to study how subtle changes in cells and connections relate to cognition, behavior, and disease.

In addition, the team showed that the scanner was safe in healthy research volunteers, revealing subtle microstructural differences (individual axon diameter or cell size) between individual brains. Before this new system, this was only feasible in postmortem or animal studies.

"Our goal was to build an imaging platform that could truly span scales — from cells to circuits," said senior author Susie Huang, MD, PhD, of the Department of Radiology at Mass General Hospital. "It provides researchers and clinicians with a powerful new tool to study brain architecture in health and disease, in real time."



Closeups of the midline sagittal view for Connectome 2.0 (left) and Connectome 1.0 (right) protocols, showing diencephalic and brainstem pathways. Tractography results are shown superimposed onto the underlying fibre orientation distribution functions. Photo credit Chiara Maffei, PhD, courtesy of the National Institutes of Health

This work is an important step toward developing a complete wiring diagram of the brain, an achievement that requires novel approaches to map the brain at different scales: across large brain regions and circuits, as well as at the level of tiny cells and connections. It also opens the door for future advances in precision neuroscience, in which noninvasive brain stimulation may help treat brain disorders tailored to an individual's unique brain circuitry.

The research was funded in part by The BRAIN Initiative®. It supports the BRAIN Initiative Connectivity Across Scales (BRAIN CONNECTS) program, which aims to develop the research capacity and technical capabilities to generate wiring diagrams that can span entire brains across multiple scales. The findings were reported July 16 in Nature Biomedical Engineering.

Reference

Ramos-Llordén, G and Lee H-H et al. Ultra-high gradient connectomics and microstructure MRI scanner for imaging of human brain circuits across scales. Nature Biomedical Engineering. 2025. https://www.nature.com/articles/s41551-025-01457-x

Source: The U.S. Department of Health and Human Services

Neurology

Cognitive Speed Training Over Weeks May Delay the Diagnosis of Dementia Over Decades

NIH-funded effort finds positive outcomes with strategies that engaged mostly unconscious, rather than conscious, thinking

A National Institutes of Health (NIH)-funded study that followed adults age 65 and older over 20 years has linked a specific cognitive training regimen to reduced diagnoses of Alzheimer disease and related dementias (ADRD). While the authors assessed three different kinds of training, only one, which challenged participants with rapid object detection tasks, was associated with a 25% lower rate of dementia diagnosis, as indicated by Medicare claims data.

"This study shows that simple brain training, done for just weeks, may help people stay mentally healthy for years longer," said NIH Director Jay Bhattacharya, MD, PhD. "That's a powerful idea — that practical, affordable tools could help delay dementia and help older adults keep their independence and quality of life."

"The findings reported here suggest that moderate cognitive training could delay the onset of dementia over subsequent years. There is still more research to be done to determine about how this works, but this promising lead may move the field further into developing effective interventions to delay or prevent onset of dementia," said Richard Hodes, MD, director of the NIH's National Institute on Aging (NIA), which funded this research.

As part of a now completed clinical trial, participants were randomized into cognitive training sessions, each lasting 60–75 minutes twice a week, over five to six weeks in 1999. Then, half of the participants were randomized into another round of training 11 and 35 months later. The study authors evaluated the effect of each training regimen by analyzing Medicare data collected as recently as 2019 from 2,021 study participants.

The interventions were designed to improve one of three kinds of cognitive function: memory, reasoning, and visual speed of processing. The only subgroup in this study that experienced delayed dementia diagnosis was the one that received speed training followed by additional training at a later date, designed to enhance the effect.

The speed training task first asked participants to identify which of two objects appeared in the center of a computer screen. The visual presentation of the stimuli became shorter over time until participants achieved a certain level of performance. Next the training asked participants to identify the central target, while concurrently detecting a similar peripheral target which appeared over increasingly short durations. Lastly, the position of the peripheral target around the computer screen varied, with each additional phase of the task making it more difficult.

Unlike memory or reasoning training, speed training sessions were unique, as difficulty of the tasks increased adaptively to make the tasks more difficult as an individual's performance improved over time. The authors note that this adaptive nature, which was exclusive to speed training, could partly explain the standout findings from this group.

Another potential driver for the delayed diagnosis may be the speed training regimen's tendency for engaging automatic, unconscious thought rather than slower, deliberate thinking. The specifics of how one would lead to the other, and why the other two training types did not yield the same results, are questions that still need to be addressed. The researchers suspect that speed training may synergize with lifestyle interventions associated with lowered risk of cognitive decline such as increased physical activity and improved diet.

"This work conveys a clear message but also leads us to ask many new questions. We are keen to dig deeper to understand the underlying mechanisms at play here, but ultimately this is a great problem to have," said Marilyn Albert, PhD, the corresponding study author and director of the Johns Hopkins Alzheimer's Disease Research Center at the Johns Hopkins School of Medicine.

This research was supported by NIA through grants R01AG056486, U01AG014260, U01AG014282, U01AG14263, U01AG14289, and U01AG014276 and by the National Institute of Nursing Research (NINR) through grants U01NR004507 and U01NR004508.

Reference

Norma B. Coe et al. Impact of Cognitive Training on Claims-Based Diagnosed Dementia Over 20 Years: Evidence from the ACTIVE Study. Alzheimer's & Dementia: Translational Research and Clinical Interventions. 2026 DOI: https://doi.org/10.1002/trc2.70197

Source: The National Institute on Aging

Nutrition

FDA and NIH Announce Innovative Joint Nutrition Regulatory Science Program

The U.S. Food and Drug Administration (FDA) and the National Institutes of Health (NIH) announced a new, joint innovative research initiative that will serve as a key element in fulfilling U.S. Department of Health and Human Services Secretary Robert F. Kennedy, Jr.'s commitment to Make America Healthy Again. With diet-related chronic diseases continually rising, it is imperative that the FDA and NIH work in lockstep to invest in gold standard science, prioritize a better understanding of the root causes to end the diet-related chronic disease crisis and safeguard the health of America's children.

Under the new Nutrition Regulatory Science Program, the FDA and NIH will implement and accelerate a comprehensive nutrition research agenda that will provide critical information to inform effective food and nutrition policy actions to help make Americans' food and diets healthier. The initiative will aim to answer questions such as:

- How and why can ultra-processed foods harm people's health?
- How might certain food additives affect metabolic health and possibly contribute to chronic disease?
- What is the role of maternal and infant dietary exposures on health outcomes across the lifespan, including autoimmune diseases?

Answering these questions and many others will enable effective policy development and help promote the radical transparency Americans deserve about the foods they are eating and how those foods can impact their health.

"The FDA is focusing resources on the greatest contributors to the staggering health care crisis: chronic diseases," said FDA Commissioner Martin A. Makary, MD, MPH, "Mirroring the highly successful FDA and NIH Tobacco Regulatory Science Program, we're bringing together scientific expertise from both agencies to transform nutrition and food-related research."

The FDA will provide its critical expertise in regulatory science and NIH will provide the infrastructure for the solicitation, review and management of scientific research. The initiative will

Graphic courtesy of the National Institute of Standards and Technology, U.S. Department of Commerce

bring together experts in many disciplines — including chronic disease, nutrition, toxicology, risk analysis, behavioral science, and chemistry — all with the goal to advance the gold standard of nutrition and food science.

"Nutrition has always been a priority at NIH. By teaming up with the FDA, we're taking a major step toward answering big questions about how food affects health — and turning that science into smarter, more effective policy. It's time to tackle the chronic disease crisis head-on. That's why NIH is making this investment alongside the FDA," said NIH Director Jay Bhattacharya, MD, PhD.

The FDA and NIH will work together to develop a research agenda for the Nutrition Regulatory Science Program and are committed to ensuring all research conducted under the Program is fair, independent and free of conflicts of interest.

Source: The National Institutes of Health

HHS Expands MAHA to Head Start Adding $61.9 Million to Nutrition Services for Children and Families

Landmark federal funding from the U.S. Department of Health and Human Services aims to transform healthy eating habits for the next generation of children

Last September the U.S. Department of Health and Human Services (HHS), through the Administration for Children and Families (ACF), today announced over $61 million in supplemental nutrition funding will go to over 290 Head Start programs around the nation to support nutrition services, promote healthy eating habits, and improve access to nutrient dense foods for more than 100,000 children and families.

“When children have access to fresh, nutritious food, we don’t just feed them for a day — we set them on a path to lifelong health,” said HHS Secretary Robert F. Kennedy, Jr. “By putting nutrition at the center of health, we are restoring trust in our public health system and delivering on our promise to Make America Healthy Again.

Secretary Kennedy visited a Head Start Center with its own community garden. At the center, students grow some of their own vegetables and teachers help children understand the difference between healthy and unhealthy foods. Photo courtesy of the U.S. Department of Health and Human Services

”The supplemental nutrition awards will accelerate Head Start programs’ capacity to improve the health and wellbeing of children and families. In Michigan, one program will receive $2,000 for interactive family education workshops on nutrition. In Puerto Rico, a $3.4 million award will fund kitchen renovations and developing new farm-to-table partnerships. And in Florida, $138,600 will establish a hydroponic garden and raised garden beds to give toddlers meaningful, hands-on agricultural and nutritional learning experiences.

“This investment marks a sea change to prioritize prevention over treatment by nourishing the minds and bodies of young children — tackling chronic disease at its roots and restoring the health of our nation’s most vulnerable,” said ACF Acting Assistant Secretary Andrew Gradison.

Additional analysis on the supplemental funding highlights how Head Start centers plan to invest in nutrition resources:

- 50% on materials, supplies and equipment, including gardens or gardening supplies designed to foster farm-to-table strategies, cooking demonstration kits, and commercial grade appliances.
- 25% on food service upgrades, including modernization of kitchen facilities to prepare fresh foods on-site, designated breastfeeding spaces, and procurement of locally sourced nutritious food items.
- 25% on nutrition education, including workshops and community events for families, training for staff on nutrition best practices, and consultation with dietitians or nutritionists.

“The response to this nutrition funding opportunity was tremendous, demonstrating the deep commitment Head Start programs have to children’s health and wellbeing,” said Dr. Laurie Todd-Smith, Deputy Assistant Secretary for Early Childhood Development. “The early years are the most powerful window to shape lifelong habits, and this funding allows us to Make America Health Again when it matters the most: during the foundational years of child development.”

The supplemental nutrition funding delivers on HHS’s recently published MAHA strategy and Secretary Kennedy’s commitment to addressing childhood nutrition challenges and promoting healthy development. Selected Head Start programs will receive funds to implement their nutrition initiatives over the next 12 months, with long-term impacts expected to benefit Head Start families and communities for years to come. For a complete list of grant recipients and award amounts, visit:

https://acf.gov/ohs/grant-funding/ supplemental-funds-head-start-nutrition

Source: The U.S. Department of Health and Human Services.

Secretaries Kennedy, McMahon Demand Comprehensive Nutrition Education Reforms

Last August the U.S. Department of Health and Human Services (HHS) with the support of the U.S. Department of Education announced a major initiative urging America’s leading medical education organizations to immediately implement comprehensive nutrition education and training. The effort is part of the Trump Administration and Secretary Robert F. Kennedy, Jr.’s Make America Healthy Again agenda, which prioritizes prevention and reducing chronic disease through improved diet and public health measures. Watch Secretary Kennedy’s direct to camera video and read his Wall Street Journal commentary.

Each year, an estimated 1 million Americans die from diet-related chronic diseases, even as the U.S. spends more than $4.4 trillion annually on chronic disease and mental health care. Despite overwhelming evidence that nutrition is one of the most powerful tools for disease prevention, the vast majority of physicians graduate with little to no training in nutrition counseling.

“Medical schools talk about nutrition but fail to teach it,” said Secretary Kennedy. “We demand immediate, measurable reforms to embed nutrition education across every stage of medical training, hold institutions accountable for progress, and equip every future physician with the tools to prevent disease — not just treat it.”

While recent Association of American Medical Colleges data shows that all U.S. medical schools claim to cover nutrition, other studies show the majority of medical students report receiving fewer than two hours of instruction. Research published in 2024 documents that 75% of U.S. medical schools have no required clinical nutrition classes, and only 14% of residency programs have a required nutrition curriculum. HHS is calling for increased nutrition education thresholds across the medical education continuum. The nation’s medical schools must fundamentally address this critical gap in health care training and ensure that future and current doctors possess the essential knowledge to provide evidence-based nutritional guidance to their patients.

“U.S. medical education has not kept up with the overwhelming research on the role of nutrition in preventing and treating chronic diseases,” said U.S. Secretary of Education Linda McMahon. “Medical schools across the country must act now to align their training with the latest research so that future physicians have the means to best help their patients stay healthy. The U.S. Department of Education is proud to stand with HHS in working to lower chronic disease rates, especially in children.”To close this gap, HHS and Department of Education are calling for nutrition education requirements to be embedded across the six critical areas of:

Graphic courtesy of the U.S. Food & Drug Administration

- Pre-Medical Standards
- Medical School Curricula Integration
- Medical Licensing Examination
- Residency Requirements
- Board Certification
- Continuing Education

HHS has directed U.S. medical education organizations to submit, by September 10, written plans detailing the scope, timeline, standards alignment, measurable milestones, and accountability measures of their nutrition education commitments. This initiative precedes the upcoming release of the 2025 Dietary Guidelines for Americans, which the Trump Administration has identified as a central tool for reversing the chronic disease epidemic as part of its Make America Healthy Again agenda.

Source: The U.S. Department of Health and Human Services

Secretary Kennedy Swears in Dr. Anthony Letai as Director of the National Cancer Institute

NCI Director Dr. Anthony Letai. Photo credit the National Cancer Institute

Anthony Letai, MD, PhD was sworn in on September 29th of 2025 as director of the National Cancer Institute (NCI), part of the National Institutes of Health (NIH), by Health and Human Services Secretary Robert F. Kennedy, Jr.

Dr. Letai takes the helm of the world's most prestigious cancer research agency after serving as professor of medicine at Harvard Medical School and medical oncologist at the Dana-Farber Cancer Institute. He possesses decades of experience studying cell death in cancer, developing treatments, and identifying predictive biomarkers.

"For too long, federal research priorities neglected cancer and other chronic diseases," said Secretary Kennedy. "President Trump ended that neglect, and under Dr. Letai's leadership, NCI will drive American innovation by focusing squarely on the best science to find causes and cures."

"Dr. Letai has been immersed in the relevant science for decades and has been on the cutting edge of how we think about cancer treatment," said NIH Director Jay Bhattacharya. "His drive, integrity, and expertise make him the right leader to harness the resources and talent at NCI to reverse America's cancer crisis."

"It is a great honor to join Secretary Kennedy and Director Bhattacharya at this watershed moment for our nation's public health," said Dr. Letai. "We will work around the clock to identify cancer's root causes, predictive biomarkers, and most effective treatments. Advances in understanding cell death and in directly studying human patient tumor tissue are essential to realizing President Trump's vision for a healthy America."

Dr. Letai's research has been central to bringing venetoclax, a BCL-2 inhibitor, from the laboratory to the clinic.

His laboratory work has led to advancements in knowledge of both liquid and solid tumors, as well as a wide range of treatments, including cellular immunotherapies. Dr. Letai is a recipient of the European Cell Death Organization Career Award, the Smith Family Prize for Outstanding Scientific Contributions, and the National Cancer Institute Outstanding Investigator Award.

Photo courtesy of the U.S. Department of Health and Human Services

After graduating from Princeton University with a Bachelor of Arts in physics, Dr. Letai received his Doctor of Medicine and Doctor of Philosophy from the University of Chicago. He completed his PhD on the molecular basis of heritable blistering diseases before residency in Internal Medicine at Brigham and Women's Hospital and a clinical fellowship in hematology and oncology at Dana-Farber Cancer Institute.

Dr. Letai began his studies of programmed cell death in cancer in a post-doctoral fellowship before establishing his laboratory at Dana-Farber Cancer Institute to study how apoptosis can be evaded by cancer cells.

Dr. Letai and his wife, Jean, have three children. Their daughter Julie represented Team USA in short track speedskating at the 2022 Winter Olympics and is a member of U.S. Speedskating's Short Track World Tour Team as it prepares for the 2026 Games in Milan.

Source: The U.S. Department of Health and Human Services.

In Five Cancer Types, Prevention and Screening have Been Major Contributors to Saving Lives

Improvements in cancer prevention and screening have averted more deaths from five cancer types combined over the past 45 years than treatment advances, according to a modeling study led by researchers at the National Institutes of Health (NIH).

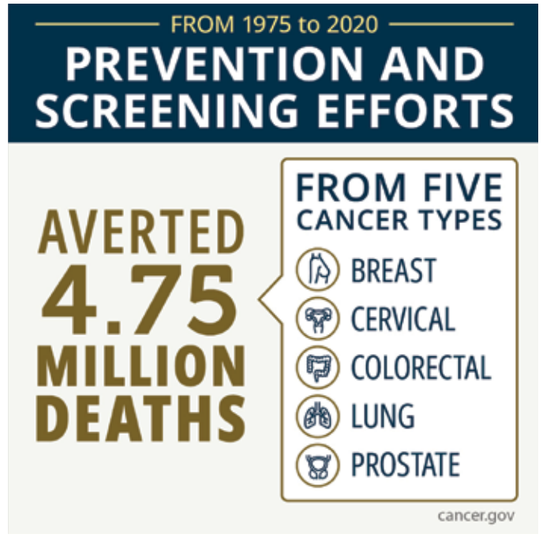
The study, published Dec. 5, 2024, in *JAMA Oncology*, looked at deaths from breast, cervical, colorectal, lung, and prostate cancer that were averted by the combination of prevention, screening, and treatment advances. The researchers focused on these five cancers because they are among the most common causes of cancer deaths and strategies exist for their prevention, early detection, and/or treatment. In recent years, these five cancers have made up nearly half of all new cancer diagnoses and deaths.

"Although many people may believe that treatment advances are the major driver of reductions in mortality from these five cancers combined, the surprise here is how much prevention and screening contribute to reductions in mortality," said co-lead investigator Katrina A. B. Goddard, PhD, director of NCI's Division of Cancer Control and Population Sciences. "Eight out of 10 deaths from these five cancers that were averted over the past 45 years were due to advances in prevention and screening."

A single prevention intervention, smoking cessation, contributed the lion's share of the deaths averted: 3.45 million from lung cancer alone. When considering each cancer site individually, prevention and screening accounted for most deaths averted for cervical, colorectal, lung, and prostate cancer, whereas treatment advances accounted for most deaths averted from breast cancer.

"To reduce cancer death rates, it's critical that we combine effective strategies in prevention and screening with advances in treatment," said W. Kimryn Rathmell, MD, PhD, director of NCI. "This study will help us understand which strategies have been most effective in reducing cancer deaths so that we can continue building on this momentum and hopefully increase the use of these strategies across the United States."

The researchers used statistical models and cancer mortality data to estimate the relative contributions of prevention, screening, and treatment advances to deaths averted from breast, cervical, colorectal, lung, and prostate cancers between 1975 and 2020.



From 1975 to 2020, prevention and screening efforts averted 4.75 million deaths from five cancer types: breast, cervical colorectal, lung prostate. Graphic courtesy of the National Cancer Institute

In total, the modeling showed, 5.94 million deaths were averted from these five cancers between 1975 and 2020. Of these, prevention and screening interventions accounted for 4.75 million, or 80%, of the averted deaths.

The individual contributions of prevention, screening, and treatment varied by cancer site:

- In breast cancer, 1 million deaths (out of 2.71 million that would have occurred in the absence of all interventions) were averted from 1975 to 2020, with treatment advances contributing to three-quarters of the deaths averted and mammography screening contributing to the rest.
- In lung cancer, prevention through tobacco control efforts accounted for 98% of the 3.45 million deaths averted (out of 9.2 million), and treatment advances accounted for the rest.

Photo courtesy of the U.S. Centers for Disease Control and Prevention, National Breast and Cervical Cancer Early Detection Program

- In cervical cancer, the 160,000 deaths averted (out of 370,000) were entirely through cervical cancer screening (i.e., Pap and HPV, or human papillomavirus, testing) and removal of precancerous lesions.
- In colorectal cancer, of the 940,000 deaths averted (out of 3.45 million), 79% were due to screening and removal of precancerous polyps, with treatment advances accounting for the remaining 21%.
- In prostate cancer, of the 360,000 deaths averted (out of 1.01 million), screening via PSA testing contributed 56% and treatment advances contributed 44%.

"These findings suggest that we need to continue to have strong strategies and approaches in all of these areas," Dr. Goddard noted. "It's not just treatment advances alone, or prevention and screening alone, that is helping us to reduce cancer mortality."

Improvements in cancer prevention and screening have averted more deaths from five cancer types combined over the past 45 years than treatment advances.

The authors pointed out that more recent prevention and screening strategies, such as HPV vaccination and lung cancer screening, were not in wide use during the study period and could further reduce cancer death rates. Other opportunities for reducing cancer deaths include making screening more accessible, such as with HPV tests that allow for self-collection, and developing new treatments.

The authors acknowledged that the five cancer sites included in the study account for less than half of all cancer deaths and that the findings for these cancers may not necessarily apply to other cancers, especially those for which there are not effective prevention, screening, or treatment interventions.

"We need to optimize the uptake and use of prevention and screening for these five cancers so that all Americans can benefit, especially underserved populations, as well as develop novel prevention and screening strategies to avert deaths due to other, very lethal cancers, such as those of the pancreas and ovary," said co-lead investigator Philip E. Castle, PhD, MPH, director of NCI's Division of Cancer Prevention.

In addition, the authors noted that the findings are based on population averages in the United States and may not be generalizable to specific population groups. The study also did not consider the potential harms of interventions, such as false-positive results and over-diagnosis during screening, nor did it measure other outcomes, such as quality of life.

Source: The National Institutes of Health

Oncology

Combination Immunotherapy Shrank a Variety of Metastatic Gastrointestinal Cancers

NIH trial shows new form of TIL therapy effective against colon, rectum, pancreas, and bile duct tumors

A new form of tumor infiltrating lymphocyte (TIL) therapy, a form of personalized cancer immunotherapy, dramatically improved the treatment's effectiveness in patients with metastatic gastrointestinal cancers, according to results of a clinical trial led by researchers at the National Institutes of Health (NIH). The findings, published April 1, 2025 in Nature Medicine, offer hope that this therapy could be used to treat a variety of solid tumors, which has so far eluded researchers developing cell-based therapies.

This form of therapy involves identifying and selecting immune cells (TILs) that are found in the tumor that specifically recognize and attack a patient's tumor cells. Next, scientists grow those TILs into large quantities in the laboratory before they are finally administered to the patient.

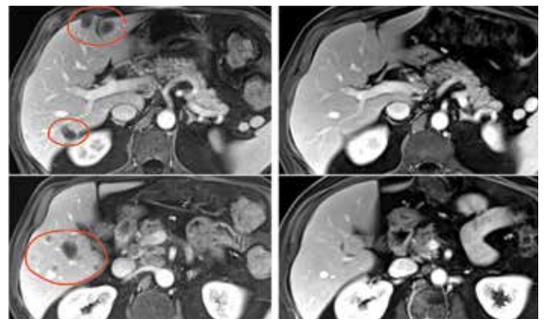


Photo courtesy of the National Cancer Institute

Patients in the clinical trial, who had a variety of gastrointestinal tumors, also received the immune checkpoint inhibitor pembrolizumab (Keytruda) to help further boost their immune response. The result was nearly 24% of patients treated with selected TILs plus pembrolizumab had a substantial reduction in the size of their tumors, compared with 7.7% of patients who received selected TILs without pembrolizumab. Patients treated with TILs that had not been selected for anti-tumor activity had no tumor shrinkage.

"We're seeing the first extension of cellular therapy with TILs into the common solid cancers," said Steven A. Rosenberg, MD, PhD, the study's lead investigator at NIH's National Cancer Institute. "We see a little crack in the solid wall of cancer by using cell-based immunotherapy for the common solid cancers, and we think we have ways to open that crack even further."

The clinical trial included 91 patients with metastatic gastrointestinal cancers — including esophageal, stomach, pancreatic, colon, and rectal cancers — that had worsened despite a median of four prior treatment regimens. In the pilot phase of the trial, 18 patients were treated with TILs that had not been selected for anti-tumor activity, and there were no objective responses (tumor shrinkage of at least 30% is considered an objective response). In the second phase, 39 patients were treated with selected TIL therapy, and three (7.7%) had objective responses.

In the third phase, 34 patients received pembrolizumab immediately before selected TIL therapy to prevent the newly introduced immune cells from becoming inactivated by the patient's own immune system. This group had the best response, with 8 of 34 (23.5%) patients experiencing an objective response. All 91 patients had also received standard chemotherapy and high-dose interleukin-2 before the TIL therapy.

In the trial's second and third phases, objective responses were seen in multiple types of gastrointestinal cancers, including cancers of the colon, rectum, pancreas, and bile duct. Responses lasted between 8 months and more than 5.8 years in the group that received selected TIL therapy alone, and between 4 months and 3.5 years in the group that received selected TIL therapy and pembrolizumab. Serious side effects occurred in 30% of patients treated with selected TILs.

The researchers are now developing methods to identify TILs that recognize multiple, specific proteins within a tumor, known as neoantigens, to help increase the number of patients who respond to selected TIL therapy with pembrolizumab.

TIL therapy, developed in the late 1980s by Dr. Rosenberg and his colleagues at NIH, uses an individual's own TILs to fight their tumor cells. Last year, the Food and Drug Administration approved the first TIL therapy for a solid cancer, lifileucel (Amtagvi), for treating advanced melanoma.

The new study was co-led by Dr. Rosenberg and NCI investigators Frank J. Lowery, PhD, and Stephanie L. Goff, MD.

Source: The National Cancer Institute

Oncology

HHS Doubles AI-Backed Childhood Cancer Research Funding

The U.S. Department of Health and Human Services has announced a doubling of funding for its Childhood Cancer Data Initiative at the National Cancer Institute. The funding surge is designed to accelerate the development of improved diagnostics, treatments, and prevention strategies.

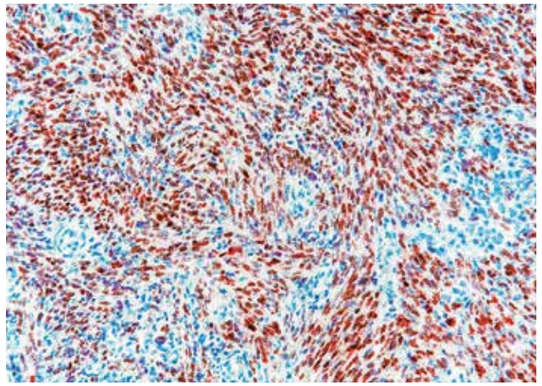
President Trump in 2019 established the Childhood Cancer Data Initiative to collect, generate, and analyze childhood cancer data. Its budget will rise from $50 million to $100 million, giving the federal government stronger data for this effort. The initiative will also bring in private-sector partners to apply advanced artificial intelligence to speed up cures for pediatric cancer.

Health and Human Services Secretary Robert F. Kennedy, Jr., National Institutes of Health Director Jay Bhattacharya, and National Cancer Institute Director Anthony Letai joined President Trump at the White House today to discuss their commitment to eradicating childhood cancer and to mark the signing of the president's executive order, Unlocking Cures for Pediatric Cancer with Artificial Intelligence."

"For too long, families have fought childhood cancer while our systems lagged behind," said Secretary Kennedy. "President Trump is changing that. We will harness American innovation in artificial intelligence to find cures for pediatric cancer."

"We are dedicated to using every innovative method and technology at our disposal in our fight against childhood cancer," said NIH Director Jay Bhattacharya, MD, PhD. "By doubling down on this mission with AI, we are ensuring that state-of-the-art science is being leveraged to provide answers about these diseases that would otherwise be out of reach."

"Our efforts have helped us learn from every child and better understand childhood cancer, reduce its risk, develop better treatments, and improve survivorship for children, teens and young adults with cancer," said NCI Director Anthony Letai, MD, PhD, who was sworn in on Sept. 29, 2025. "I cannot think of a better way to begin my tenure at NCI than to redouble our efforts to support our youngest patients and their families facing rare leukemias and other cancers. We will not stop until childhood cancer is a thing of the past."



This image depicts HHV-8 Latency-Associated Nuclear Antigen (LANA) expression in an immunohistochemical (IHC) stain of a Kaposi sarcoma (KS) biopsy. The biopsy was obtained from the lymph node of a pediatric patient in Malawi. LANA is identified by dark red staining of the nuclei, and the LANA-negative nuclei are counterstained blue with hematoxylin. The KS cells display a classic spindle cell phenotype, with disruption of the lymph node architecture. Examination of IHC markers from patient samples allows us to correlate findings with clinical data and improve patient outcomes. 200X magnification. Imaging and histochemistry credit Anthony B. Eason, lab of Dirk Dittmer, University of North Carolina Lineberger Comprehensive Cancer Center, courtesy of the National Institutes of Health

The U.S. Department of Health and Human Services (HHS) will use artificial intelligence to maximize the potential for electronic health record and claims data to inform research and clinical trial design. Parents will remain in control of their child's health information as the data is used to benefit patients and researchers.

The president's Make American Healthy Again (MAHA) Commission Strategy Report [PDF, 21.85 MB] directs HHS to "focus on research that harnesses AI to uncover causes, identify risks early, and take action in childhood and young adulthood to prevent cancer." Pediatric cancer remains the leading cause of disease-related death for children in the United States, and its incidence has increased by more than 40 percent since 1975.

Source: The U.S. Department of Health and Human Services

NATIONAL CANCER INSTITUTE

Why Invest in Basic Cancer Research?

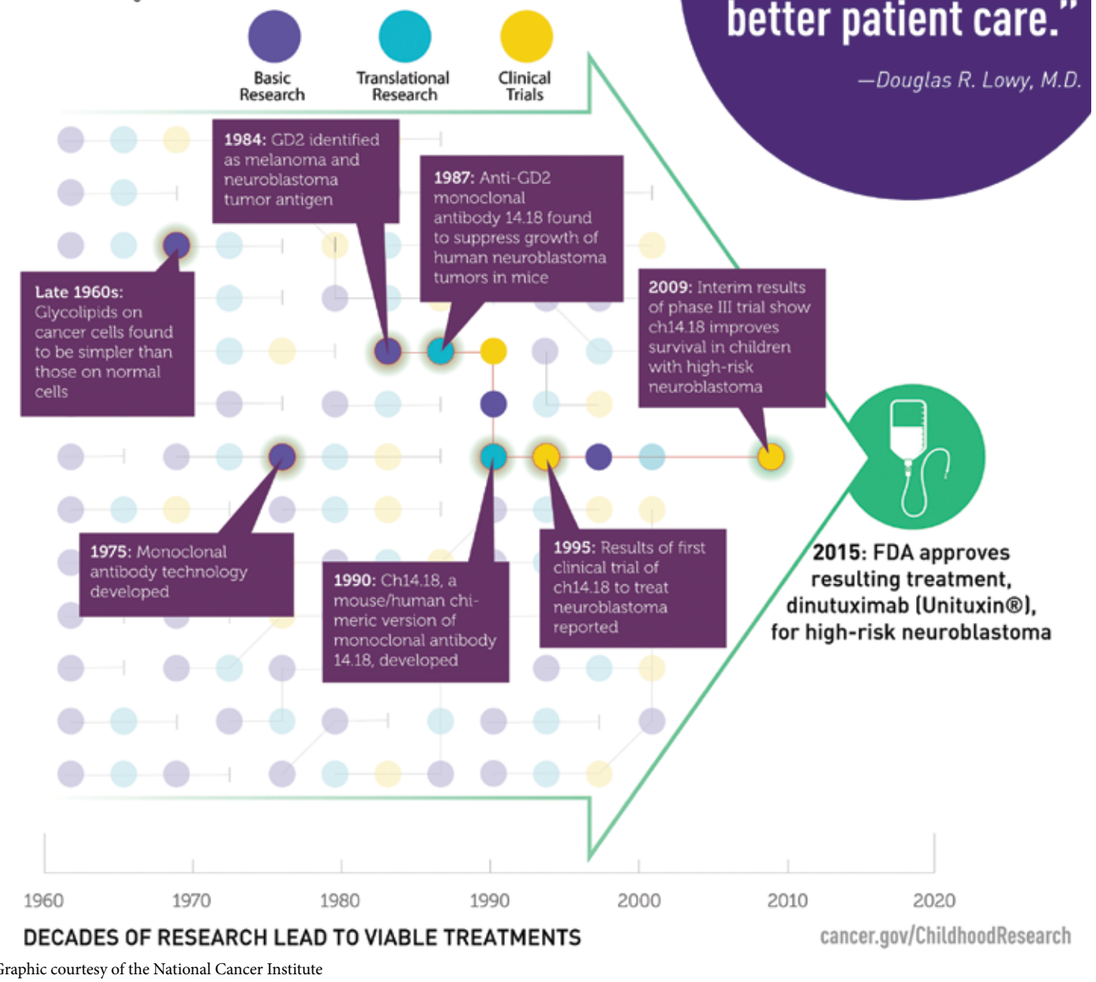
Progress against pediatric cancer requires long-term investment in basic research, which provides the raw material for tomorrow's scientific and clinical advances. Many advances in cancer prevention, diagnosis, and treatment would not have occurred without the knowledge gained from this fundamental research.

New research ideas are often inspired by findings from earlier investigations, studies of other cancers, and even research on other diseases. Each advance builds on past discoveries and, in turn, spurs new ideas.

The research that leads to a new treatment or intervention often involves an iterative approach that spans years. The development of ch14.18, later named dinutuximab (Unituxin®), to treat neuroblastoma is one such example. See www.cancer.gov/ch1418 for more details.

"Basic cancer research leads to new discoveries for better patient care."

—Douglas R. Lowy, M.D.



Graphic courtesy of the National Cancer Institute

Incidence Rates of Some Cancer Types have Risen in People Under Age 50

Despite increasing incidence rates, cancer deaths in young people have not increased overall

Researchers at the National Institutes of Health (NIH) have completed a comprehensive analysis of cancer statistics for different age groups in the United States and found that from 2010 through 2019, the incidence of 14 cancer types increased among people under age 50. Of these cancer types, nine — including several common cancers, such as breast cancer and colorectal cancer — also increased in some groups of people aged 50 and older. However, the incidence of 19 other cancer types — including lung cancer and prostate cancer — decreased among people under age 50, so the total rate of all cancers diagnosed in both younger and older age groups did not increase, nor did the rate of cancer death.

"This study provides a starting point for understanding which cancers are increasing among individuals under age 50," said lead investigator Meredith Shiels, PhD, of NIH's National Cancer Institute. "The causes of these increases are likely to be cancer specific, including cancer risk factors becoming more common at younger ages, changes in cancer screening or detection, and updates to clinical diagnosis or coding of cancers."

Researchers examined incidence and mortality trends for 33 cancer types, including incidence data for 2010-2019 from CDC's United States Cancer Statistics database, which includes cancer registry data that represent the entire U.S. population, and mortality data for 2010-2022 from national death certificate data. Data were analyzed in six age groups: three early-onset (15-29 years, 20-39 years, and 40-49 years) and three older-onset (50-59 years, 60-69 years, and 70-79 years).

Meredith Shiels, PhD, MHS, Senior Investigator, Infections and Immunoepidemiology Branch, National Cancer Institute

Incidence of 14 of the 33 cancer types increased in at least one of the younger age groups. Incidence of nine of these 14 types also increased in at least one of the older age groups: female breast, colorectal, kidney, testicular, uterine, pancreatic, and three types of lymphoma. Although death rates did not increase in early-onset age groups for most of these cancers, researchers did observe concerning increases in rates of colorectal and uterine cancers deaths at younger ages.

Only five cancer types increased in incidence among one of the younger age groups but not among any of the older age groups: melanoma, cervical cancer, stomach cancer, myeloma, and cancers of the bones and joints.

To understand the magnitude of the increases in terms of absolute numbers, the researchers estimated how many additional people were diagnosed with early-onset cancers in 2019 compared with expected diagnoses based on rates in 2010. The largest absolute increases were seen for female breast cancer, with about 4,800 additional cases in 2019, followed by colorectal (2,100), kidney (1,800), uterine (1,200), and pancreatic cancers (500). Female breast, colorectal, kidney, and uterine cancers contributed to more than 80% of the additional early onset cancers in 2019.

The researchers speculated that risk factors such as increasing obesity may have contributed to some of the increases in early-onset cancer incidence in recent years. Changes in cancer screening guidelines, advances in imaging technologies, and increased surveillance of high-risk individuals may also have led to earlier cancer diagnoses, potentially contributing to rising rates among younger age groups.

To more fully understand and address these increasing rates, the authors said that future studies should examine trends in early-onset cancers across demographics and geography in the U.S. and internationally.

Additional research is also needed to better understand the risk factors that are particularly relevant to younger people.

Source: The National Cancer Institute

Daily Physical Activity, Even at Light Intensities, Linked to Lower Cancer Risk

NIH study finds number of steps taken daily may be more important for cancer risk than the intensity of activity

By Alaina Shreves, MS, Division of Cancer Epidemiology and Genetics, National Cancer Institute, and Nuffield Department of Population Health, University of Oxford

In a prospective cohort study of more than 85,000 adults in the United Kingdom, researchers at the National Institutes of Health (NIH) and University of Oxford found that individuals who engaged in light- and moderate-to-vigorous-intensity daily physical activity had a lower risk of cancer than individuals who were more sedentary. The findings, published March 26, 2025, in British Journal of Sports Medicine, are among the first to evaluate the cancer risk reduction associated with light intensity activities such as doing errands and performing household chores.

Previous studies have shown an inverse association between physical activity and cancer risk, but most of these studies relied on self-reported questionnaires, which may not accurately capture the intensity of different activities. Earlier studies that used objective measures were focused on higher-intensity physical activity. In the new study, led by researchers from NIH's National Cancer Institute, participants in the UK Biobank study (median age of 63) wore wrist accelerometers that tracked total daily activity, activity intensity, and daily step count over a period of one week. The researchers then looked at the relationship between the daily averages and incidence of 13 cancer types, including breast and colorectal cancer, previously associated with physical activity.

After a mean follow-up of 5.8 years, 2,633 participants had been diagnosed with one of the 13 cancer types. Individuals with the highest total amount of daily physical activity had a 26% lower risk of developing cancer than individuals who had the lowest amount of daily physical activity. The researchers also explored the impact of replacing daily sedentary time with light- and moderate-to-vigorous-intensity physical activity and found that this shift was associated with a reduced risk of cancer. The associations between physical activity and cancer risk remained even after researchers adjusted for demographic factors, lifestyle factors, body mass index (BMI), and other health conditions.

Taking more steps reduces a person's risk of cancer. Photo credit iStockphoto, courtesy of the National Cancer Institute

Being physically active lowers your risk for developing at least eight types of cancer. Graphic courtesy of the U.S. Centers for Disease Control and Prevention

Higher daily step count, but not the pace of the steps (step intensity), was also associated with a lower risk of cancer. Compared with cancer risk in those taking 5,000 steps per day, cancer risk was 11% lower for those taking 7,000 steps per day and 16% lower for those taking 9,000 steps per day. Beyond 9,000 steps, the risk reduction plateaued. The researchers suggested that less physically active individuals may lower their cancer risk by incorporating more walking, at any pace, into their daily routine.

Source: The National Institutes of Health

NIH Study Links Particulate Air Pollution to Increased Mutations in Lung Cancers among Nonsmokers

Whole-genome sequencing study found air pollution to cause more cancer-related changes than secondhand smoke

By Maria Teresa Landi, MD, PhD (Senior author and PI of the Sherlock-Lung study) and Tongwu Zhang, PhD

Scientists at the National Institutes of Health (NIH) and their colleagues at the University of California, San Diego, have found that fine-particulate air pollution, which includes pollution from vehicles and industry, was strongly associated with increased genomic changes in lung cancer tumors among people who have never smoked. By assembling the largest-ever whole-genome analysis of lung cancer in individuals who have never smoked, researchers were able to link air pollution exposure to increased cancer-driving and cancer-promoting genetic mutations. This could potentially lead to more prevention strategies for never-smokers.

Photo credit DimaBerlin Adobe stock, courtesy of the National Institutes of Health

Researchers analyzed lung tumors from 871 never-smoker patients across 28 geographic locations worldwide as part of the Sherlock-Lung study. They found associations between air pollution exposure and changes in the TP53 gene, and other genetic mutational signatures previously associated with tobacco smoking. They also observed a relationship between air pollution and shorter telomeres, which are sections of DNA found at the end of chromosomes. Telomeres shorten naturally with age and shorter telomeres are related to cells inability to continue to replicate. However, scientists found fine particulate air pollution was linked to premature shortening of telomeres.

Prior genomic studies of lung cancer have focused on tobacco smokers, leaving a significant gap in our understanding of how lung cancer develops in people who have never used tobacco.

Tobacco smoking is the main cause of lung cancer, but researchers are working to understand why many nonsmokers also develop it. Photo credit Nattakorn_Maneerat, Shutterstock, courtesy the National Institutes of Health

By beginning to uncover the mechanisms through which tissues acquire cancer-causing or cancer-promoting mutations following environmental exposures, this study helps scientists better understand the primary drivers of lung cancer in this population — which represents up to 25% of all lung cancer cases globally.

Interestingly, the researchers found that while exposure to secondhand smoke was associated with slightly higher mutation burdens and shorter telomeres, compared to tumors in patients who were not exposed, it did not lead to an increase in cancer-driving mutations or mutational signatures. This suggests that secondhand smoke may have a lower overall ability to cause genetic mutations, known as mutagenicity, compared to air pollution.

This work was led by researchers at NIH's National Cancer Institute and the University of California, San Diego, and published in Nature on July 2, 2025.

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Source: The National Institutes of Health

Researchers Identify New Blood Markers that May Detect Early Pancreatic Cancer

NIH-funded, four-marker panel could one day help catch one of deadliest cancers at more treatable stages

National Institutes of Health (NIH)-supported investigators have developed a blood test to find pancreatic ductal adenocarcinoma, one of the deadliest forms of cancer. The new test could improve survival rates from pancreatic cancer, which tends to be diagnosed at late stages when therapy is less likely to be effective. The findings were published in Clinical Cancer Research.

Overall, only about 1 in 10 pancreatic cancer patients survive more than five years from diagnosis. However, experts expect that when the cancer is found and treated at an earlier stage, survival would improve. While finding the cancer early is key, there are no current screening methods to do so.

In the study, scientists at the University of Pennsylvania Perelman School of Medicine, Philadelphia, and Mayo Clinic, Rochester, Minnesota, used a phased approach to testing biomarkers in the blood collected from patients with pancreatic cancer and similar patients without the malignancy. They included two blood biomarkers previously explored for use in this way, carbohydrate antigen 19-9 (CA19-9), which is used to monitor treatment response in patients with pancreatic cancer, and thrombospondin 2 (THBS2), another previously used marker. Neither worked well as a screening tool. CA19-9 can be elevated in people with benign conditions such as pancreatitis and bile duct obstruction while other patients don't produce it at all due to genetic factors.

In analyzing banked blood samples, the team found two novel biomarker proteins that were elevated in the blood of early-stage pancreatic cancer patients compared with healthy volunteers, aminopeptidase N (ANPEP) and polymeric immunoglobin receptor (PIGR).

When they combined ANPEP and PIGR with CA19-9 and THBS2 the four-marker panel successfully distinguished pancreatic cancer cases from non-cases 91.9% of the time for all stages combined at a false positive rate of 5% in non-cases. Similarly, for early-stage (stage I/II) cancer, the four-marker test identified 87.5% of cases.

"By adding ANPEP and PIGR to the existing markers, we've significantly improved our ability to detect this cancer when it's most treatable," said the study's lead investigator, Kenneth Zaret, PhD, University of Pennsylvania's Perelman School of Medicine.

Importantly, the four-marker test successfully distinguished cancer patients from both healthy individuals and those with non-cancerous pancreatic conditions, such as pancreatitis.

"Our retrospective study findings warrant further testing in larger populations, particularly in people before they show symptoms," Zaret said. "Such 'prediagnostic' studies would help determine if the test could be used as a screening tool for people at high risk of developing the disease based on family history, genetic screening results or personal history of pancreatic cysts or pancreatitis."

About 1.7% of people in the United States will be diagnosed with pancreatic cancer at some point in their lives. Despite being the 10th most common type in the United States, pancreatic cancer is the third most common cause of cancer deaths. Photo courtesy of the National Library of Medicine

The study was supported by NIH grants U01CA210138, P50CA102701, S10 OD023586-01, P30 DK020579, UL1 TR002345, P30CA091842, and U01CA210138.

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Source: The National Cancer Institute

NIH Researchers Supercharge Ordinary Clinical Device to Get a Better Look at the Back of the Eye

New technique brings retina into sharper focus

Scientists at the National Institutes of Health (NIH) have leveraged artificial intelligence to transform a device designed to see tissues in the back of the eye into one sharp enough to make out individual cells. The technique provides imaging resolution that rivals the most advanced devices available and is cheaper, faster, and doesn't require specialized equipment or expertise. The strategy has implications for early detection of disease and for the monitoring of treatment response by making what was once invisible now visible.

"AI potentially puts next-generation imaging in the hands of standard eye clinics. It's like adding a high-resolution lens to a basic camera," said Johnny Tam, PhD, investigator at NIH's National Eye Institute and senior author of the study report, which published in Communications Medicine.

Imaging devices, known as ophthalmoscopes, are widely used to examine the light-sensing retina in the back of the eye. A scanning laser ophthalmoscope is standard in eye clinics, but its resolution can only make out structures at the tissue level — things such as lesions, blood vessels, and the optic nerve head. Next-generation ophthalmoscopes enabled with adaptive optics — a technology that compensates for light distortion — can make out cellular features, providing greater diagnostic information. However, adaptive optics-enabled imaging is still in the experimental phase.

Tam and collaborators developed a custom AI system to digitally enhance images of a layer of tissue beneath the light-sensing photoreceptors, known as the retina's pigmented epithelium (RPE). The first step was to teach the system to recognize image quality as poor, moderate, or good. The researchers did this by feeding the system more than 1,400 images from different areas of the retina, obtained using adaptive-optics ophthalmoscopy. Next, they fed the system corresponding images from the same retinal locations but obtained using standard ophthalmoscopy. An image sharpness test showed that AI improved clarity eightfold.

"Our system used what it learned from rating the images obtained from adaptive optics to digitally enhance images obtained with standard ophthalmoscopy," said Tam. "It's important to point out that the system is not creating something from nothing. Features that we see in RPE cells with standard imaging are there, they're just unclear."

These techniques involve injection of a dye called indocyanine green (ICG) into the bloodstream to increase contrast of anatomical features. In the eye clinic, ICG is usually used to image the blood vessels of the eye.

"Our ICG imaging strategy allows RPE cells to be quickly and routinely assessed in the clinic," said Joanne Li, PhD, first author of the report and a biomedical engineer in Tam's lab. "With AI, high quality images of the RPE cells can be obtained in a matter of seconds, using standard clinical imaging instruments."

The RPE cells' function is to nourish and support photoreceptors. A variety of blinding conditions first affect RPE cells, including age-related macular degeneration, vitelliform macular dystrophy, and Stargardt disease. However, RPE cells cannot be easily imaged in the clinic. AI-enhanced ICG ophthalmoscopy puts RPE imaging within reach of the typical eye clinic.

This press release describes a basic research finding. Basic research increases our understanding of human behavior and biology, which is foundational to advancing new and better ways to prevent, diagnose, and treat disease. Science is an unpredictable and incremental process — each research advance builds on past discoveries, often in unexpected ways. Most clinical advances would not be possible without the knowledge of fundamental basic research. To learn more about basic research, visit https://www.nih.gov/news-events/basic-research-digital-media-kit.

NEI leads the federal government's efforts to eliminate vision loss and improve quality of life through vision research…driving innovation, fostering collaboration, expanding the vision workforce, and educating the public and key stakeholders. NEI supports basic and clinical science programs to develop sight-saving treatments and to broaden opportunities for people with vision impairment. For more information, visit https://www.nei.nih.gov

Source: The National Eye Institute

Repurposing a Blood Pressure Drug May Prevent Vision Loss in Inherited Blinding Diseases

NIH studies in animals show reserpine protects retinal-neurons necessary for vision, especially in females

New studies in rats suggest the drug reserpine, approved in 1955 for high blood pressure, might treat the blinding disease retinitis pigmentosa. No therapy exists for this rare inherited disease, which starts affecting vision from childhood. A report on the studies, conducted at the National Institutes of Health (NIH), published today in *eLife*.

"The discovery of reserpine's effectiveness may greatly speed therapeutics for retinitis pigmentosa and many other inherited retinal dystrophies, which can be caused by one of more than a thousand possible mutations affecting more than 100 genes. Reserpine's neuroprotective effect is independent of any specific underlying gene mutation," said the study's lead investigator, Anand Swaroop, PhD, senior investigator at NIH's National Eye Institute.

Inherited retinal dystrophies cause degeneration of the retina, the light-sensing tissue at the back of the eye. Vision loss can be present at birth or develop later in early adulthood. Disease progression varies depending on the gene involved. Some genetic defects may be inherited as dominant, where a mutation in just one of the two copies of the gene (one each from the mother and father) is sufficient to cause vision loss. Other genetic defects are recessive, where both copies of a gene must carry a mutation to cause vision loss. Gene therapies to correct inherited retinal dystrophies are promising, but take a long time to develop, are gene specific, and are often quite expensive.

The findings are the latest evidence that reserpine improves survival of photoreceptor cells, the light-detecting retinal neurons that die in retinitis pigmentosa and other retinal dystrophies. In 2023, the Swaroop Lab demonstrated reserpine's potential for preventing vision loss from LCA10, a retinal dystrophy caused by mutations in the CEP290 gene.

In its latest work, Swaroop's team tested reserpine in a rat model of a dominant form of retinitis pigmentosa caused by a mutation in the visual pigment gene rhodopsin. This disease mutation is common in Irish Americans with retinitis pigmentosa. Compared to untreated rats, reserpine preserved the process by which photoreceptors convert light that enters the eye into electrical signals that are sent to the brain to produce vision, known as phototransduction, in retinal cells called rod photoreceptors. Rod photoreceptors enable low-light vision; cone photoreceptors enable color vision in bright light.

Unexpectedly, reserpine better protected rod photoreceptors in female rats compared to males. The scientists also observed significant preservation of cone photoreceptors in female rats compared to male rats.

"We can only speculate about these sex-specific differences. However, future research would benefit from teasing out these differences and understanding them to lay a foundation for personalized approaches to retinal disease therapy," Swaroop said.

Swaroop's lab is developing additional, and more potent reserpine-related drugs. The idea would be to use such options to treat late-onset or slowly progressing inherited retinal dystrophies or to simply stall vision loss in aggressive retinitis pigmentosa varieties until more effective treatments are developed that can reverse that vision loss.

Reserpine is no longer used for treating high blood pressure because of its side effects. The required dosage for treating retinal degeneration, however, would be very low and directly delivered in the eye. Reserpine is a small molecule therapy, which makes it easy to deliver to target tissues in the eye.

This work was supported by the NEI Intramural Research Program.

NEI leads the federal government's research on the visual system and eye diseases. NEI supports basic and clinical science programs to develop sight-saving treatments and address special needs of people with vision loss. For more information, visit https://www.nei.nih.gov

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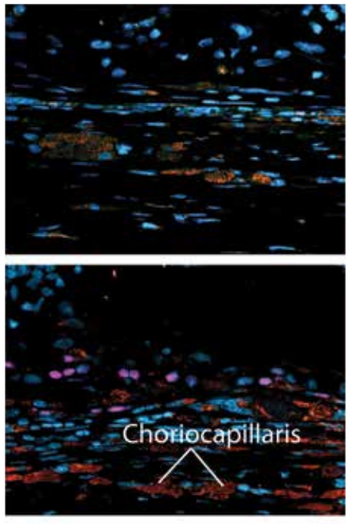
Source: The National Eye Institute

Ophthalmology

NIH Scientists Test in an Animal Model a Surgical Technique to Improve Cell Therapy for Dry AMD

The technique may enable higher doses and combinations of cell therapies

National Institutes of Health (NIH) scientists have developed a new surgical technique for implanting multiple tissue grafts in the eye's retina. The findings in animals may help advance treatment options for dry age-related macular degeneration (AMD), which is a leading cause of vision loss among older Americans. A report about the technique published today in JCI Insight.



Top image shows the scaffold-only, which served as a control. Bottom image shows how the scaffold with RPE regenerated the choriocapillaris (labeled red), the part of the eye that supplies the retina with oxygen and nutrients. Kapil Bharti, PhD. Photo courtesy of the National Eye Institute

In diseases such as AMD, the light-sensitive retina tissue at the back of the eye degenerates. Scientists are testing therapies for restoring damaged retinas with grafts of tissue grown in the lab from patient-derived stem cells. Until now, surgeons have only been able to place one graft in the retina, limiting the area that can be treated in patients, and as well as the ability to conduct side-by-side comparisons in animal models. Such comparisons are crucial for confirming that the tissue grafts are integrating with the retina and the underlying blood supply from a network of tiny blood vessels known as the choriocapillaris.

For the technique, investigators designed a new surgical clamp that maintains eye pressure during the insertion of two tissue patches in immediate succession while minimizing damage to the surrounding tissue.

In animal models, the scientists used their newly designed surgical technique to compare two different grafts placed sequentially in the same experimentally induced AMD-like lesion. One graft consisted of retinal pigment epithelial (RPE) cells grown on a biodegradable scaffold. RPE cells support and nourish the retina's light-sensing photoreceptors. In AMD, vision loss occurs alongside the loss of RPE cells and photoreceptors. In the lab, RPE cells are grown from human blood cells after they've been converted into stem cells. The second graft consisted of just the biodegradable scaffold to serve as a control.

Post surgery, scientists used artificial intelligence to analyze retinal images and compare the effects of each graft. They observed that the RPE grafts promoted the survival of photoreceptors, while photoreceptors near scaffold-only grafts died at a much higher rate. Additionally, they were able to confirm for the first time that the RPE graft also regenerated the choriocapillaris, which supplies the retina with oxygen and nutrients.

Kapil Bharti, PhD, scientific director at the National Eye Institute. Photo credit Dustin Hays, courtesy of the National Eye Institute

The findings expand on the capability demonstrated in an ongoing, NIH-led first-in-human clinical trial of patient-derived RPE grafts for the dry form of AMD. The work was supported by the National Eye Institute Intramural Research Program

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Source: The National Eye Institute

Pain Management

NIH Study Reveals How Inflammation Makes Touch Painful

Researchers uncover the cellular and molecular basis for sensing heat and inflammatory pain

Researchers at the National Institutes of Health (NIH) have discovered clues as to how our bodies turn sensations such as heat and touch into signals sent to the brain — and how these signals can be altered by inflammation to drive pain. The research focuses on the nerve cells in the skin that help us detect the location, intensity, and emotional quality of touch, known as somatosensory neurons. By combining advanced imaging techniques with detailed molecular analysis, the researchers explored how heat and touch activate different types of receptor cells in mice.

"To develop better treatments for pain, it's critical that we deepen our understanding of the biology behind how sensory signals are received, transmitted, and ultimately perceived by the brain," said Alex Chesler, PhD, co-author of the study and senior investigator at NIH. "Over the past few years, we developed a platform for watching sensation in action, revealing new details about the cells and molecules required and, in this study, how inflammation triggers pain."

The research revealed how different types of cells were "called into action" depending on whether the stimulus was innocuous, such as gentle warmth or touch, or noxious, meaning a stimulus strong enough to potentially cause damage to normal tissue. For example, heat and gentle touch were transmitted by entirely different types of cells. When the stimulus was more intense, the nerve cells began to overlap in their roles for transmitting the sensations of heat and pressure, providing an explanation for how cells detect and distinguish between innocuous and noxious stimuli.

Inflammation is well known to be linked to pain, but the understanding of what is happening on the cellular and molecular levels is less clear. In their experiments, researchers injected prostaglandin E2 into the skin, a molecule that causes inflammation and drives pain. With the inflammatory response set into motion, researchers found that certain neurons used for signaling pain (nociceptors) became active and sensitized to heat for a long duration, demonstrating the cellular processes at play.

"This explains how inflammation drives ongoing pain and why heat becomes more painful," said Nick Ryba, PhD, co-author and senior investigator at NIH. "However, what was unexpected was that touch detection remained unchanged."

The study found that inflammation-related hypersensitivity to touch, known as tactile allodynia, was caused by the ongoing nociceptor activity induced by inflammation superimposed on the normal sensation of touch. This finding is consistent with previous research at NIH showing that the ion channel PIEZO2 plays a crucial role in this type of pain.

The research is part of a long-term collaboration between the groups headed by Drs. Chesler and Ryba. Together these labs conduct basic research focusing on how sensory input is detected and processed by the brain to evoke specific behaviors. According to Dr. Chesler, even though this study is in mice, the similarities to humans in the neural pathways far outweigh the differences, so the findings hold important implications for people.

"By learning more about how touch and heat are signaled in the body, we're identifying new clues for treating pain," said Dr. Chesler. "Our study shows how different types of pain may benefit from different types of treatments. In short, by identifying exactly which cells and molecules 'turn up the volume' of different types of pain, we may be able to identify the 'switches' that can turn the volume down."

The research was led by investigators in the Sensory Cells and Circuits Lab at NIH's National Center for Complementary and Integrative Health and the Taste and Smell Section at NIH's National Institute of Dental and Craniofacial Research.

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Source: National Center for Complementary and Integrative Health

Pain Management

NIH-funded Research Team Engineers New Drug Targeting Pain Sensation Pathway

Study of CB1 receptor has implications for chronic pain treatment

By Julia Bachman, PhD, HEAL Program Manager, National Institutes of Health

A research team funded by the National Institutes of Health (NIH) has developed a medication that shows promise in treating acute and chronic pain. The drug, known as VIP36, targets the body's cannabinoid receptor type 1 (CB1).

It was found to be effective in three different animal models for pain and does not appear to cause the harmful side effects that have frustrated other efforts to target CB1.

These results enhance understanding of how to design safer and more effective drugs targeting cannabinoid receptors and are an important step towards developing novel, non-addictive treatments for pain.

Photo courtesy of the National Library of Medicine

CB1 receptors can be found throughout the body and are particularly dense in the brain's pain circuitry. They have long been considered a potential target for non-opioid-based pain treatment; however, previous attempts to target this pathway have been met with two challenges.

First, repeated exposure to a drug leads to tolerance that limits its efficacy. Second, the dose required to reduce pain in the periphery tends to be high enough for the drug to make its way into the central nervous system. In humans, this can cause unwanted changes in mood, cognition, or emotional state.

To overcome these issues, researchers leveraged computer modeling of the CB1 receptor to design molecules that better interact with CB1, much like a key fitting into a lock. The newly designed drug, VIP36, is more "peripherally restricted" compared to previous drugs, meaning that much less of it leaks into the central nervous system where it can cause unwanted side effects. VIP36 also interacts with CB1 differently than treatments tested previously and in a way that reduces tolerance.

CB1 is part of a wide-ranging class of receptors known as G-protein-coupled receptors, which are involved in countless functions throughout the body including smell, vision, mood regulation, immune system responses, autonomic nervous system responses such as blood pressure and heart rate, and growth and metastasis of some tumors. In addition to their implications in pain care, the findings of this study could also help spur the design of other drugs that target similar receptors involved in other conditions.

This research was funded by NIH's Helping to End Addiction Long-term® Initiative, or NIH HEAL Initiative®, an NIH-wide effort that seeks to speed scientific solutions to the overdose epidemic, including opioid and stimulant use disorders, and the crisis of chronic pain.

Source: The National Institute of Neurological Disorders and Stroke

Pediatrics

HHS Celebrates 60 Years of the Head Start Program Transforming the Lives of Children Furthest from Opportunity, and Empowering Families Through Education, Health, and Training

The Administration for Children and Families celebrates the 60th birthday of the Head Start program. What started in 1965 as a program to fight poverty has grown into a national model for early learning, health and nutrition, and family support to over 40 million children and families.

"I am committed to protecting the promise of Head Start, as envisioned by my uncle who created the program 60 years ago," said HHS Secretary Robert F. Kennedy, Jr. "And I will ensure that the next generation of families living in poverty have access to this vital program that offers what they need to thrive."

This year, about 750,000 infants, toddlers and preschool children will receive Head Start services. Delivered through local schools, non-profits, and community organizations, Head Start programs operate in every state, most territories, and many tribal nations. More than half of Head Start programs serve rural communities, reaching low-income families in areas where child care is often hard to find.

"Since its creation, Head Start has offered a foundation to address vulnerable families' most pressing concerns," said Andrew Gradison, Acting Assistant Secretary at ACF. "As we

Lady Bird Johnson attends the ceremony for National Head Start Day, June 30, 1965. Front row, left to right: Timothy Shriver, Robert Shriver, Danny Kaye, Lady Bird Johnson, Mrs. Lou Maginn (Director of a HeadStart project in East Fairfield, Vermont), Sargent Shriver. Photo credit LBJ Presidential Library

Dr. Laurie Todd-Smith, Deputy Assistant Secretary for Early Childhood Development. Photo courtesy of the Administration for Children and Families

look to the future, we are excited to update the program to best serve the children of the 21st century."

The Head Start program encourages family involvement, making parents and caregivers essential partners in their child's growth. The program also supports parents, offering job training, housing assistance, and parenting coaching to help families thrive. Parents are also invited to help shape the program by volunteering in classrooms or serving on policy councils, ensuring they have the tools and support to build a brighter future for themselves and their children.

"The foundation established by Head Start over the last 60 years has accelerated state and local focus on early childhood education" said Dr. Laurie Todd-Smith, Deputy Assistant Secretary for Early Childhood Development at ACF. "As brain science continues to prove, the first five years of life are the launching pad for the long-term success."

"As brain science continues to prove, the first five years of life are the launching pad for the long-term success."

— Dr. Laurie Todd-Smith

Throughout the month of May, the Administration for Children and Families is celebrating 60 incredible years of impact. Join us in honoring the generations of children, families, and staff who've helped make the Head Start program what it is today.

Source: The U.S. Department of Health and Human Services

Photo courtesy of the U.S. Centers for Disease Control and Prevention

Head Start®

Pediatrics

MAHA Commission Unveils Landmark Report Exposing Root Causes of Childhood Chronic Disease Crisis

On May 22, 2025 The Presidential Commission to Make America Healthy Again (MAHA) released a groundbreaking assessment identifying key drivers behind the childhood chronic disease crisis. Coming just 98 days after President Trump signed an Executive Order establishing the MAHA Commission and tasking it with delivering a "Make Our Children Healthy Again Assessment," the report exposes a range of contributing factors — including poor diet, accumulation of environmental toxins, insufficient physical activity, chronic stress, and overmedicalization.

By examining these drivers, the assessment arms MAHA Commission stakeholders and partners with clear evidence that will support the development of effective policy interventions where they can deliver the greatest impact.

"We will end the childhood chronic disease crisis by attacking its root causes head-on — not just managing its symptoms," said U.S. Health and Human Services Secretary Robert F. Kennedy, Jr. "We will follow the truth wherever it leads, uphold rigorous science, and drive bold policies that put the health, development, and future of every child first. I'm grateful to President Trump for his leadership — and for trusting me to lead this fight to root out corruption, restore scientific integrity, and reclaim the health of our children."

"We must do more to improve the health outcomes of our kids and families, and President Trump knows agriculture is at the heart of the solution. America's farmers and ranchers dedicate their lives to the noble cause of feeding their country and the world, and in doing so have created the safest and most abundant and affordable food supply in the world. We are working to make sure our kids and families are consuming the healthiest food we produce," said U.S. Department of Agriculture Secretary Brooke Rollins. "I look forward to continuing to work with Secretary Kennedy and other members of the MAHA Commission to improve our nation's health."

"America's childhood chronic disease crisis will be solved through innovation," said U.S. Environmental Protection Agency Administrator Lee Zeldin. "At EPA, we will do our part to protect human health and the environment while fulfilling all of our statutory obligations to safely regulate chemicals needed for every part of modern life to transport, build, feed, and power the Great American Comeback. This report shows America will continue to be the energy, industrial, and agricultural power of the world — and we can continue this while ensuring we have the healthiest children."

Photo courtesy of the U.S. Centers for Disease Control and Prevention.

The need for this report is clear:

- Today in the U.S. more than 1 in 5 children over 6 years old are obese. This is a more than 270% increase compared to the 1970s.
- Prevalence of pre-diabetes in teens is more than 1 in 4 teens, having more than doubled over the last 2 decades.
- Childhood cancer incidence has risen over nearly 40% since 1975, especially in children aged 0-19.
- Autism spectrum disorder impacts 1 in 31 children by age 8.
- Teenage depression rates nearly doubled from 2009 to 2019, and with more than 1 in 4 teenage girls in 2022 reporting a major depressive episode in the past year.
- Three million high school students seriously considered suicide in 2023.
- Between 1997 and 2018, childhood food-allergy prevalence rose 88%.

Next steps will include supporting gold-standard scientific research and developing a comprehensive strategy. The MAHA commission now has 82 days to produce the Make Our Children Healthy Again Strategy, based on the findings from this assessment.

Source: The U.S. Department of Health and Human Services

Pediatrics

MAHA Commission Unveils Sweeping Strategy to Make Our Children Healthy Again

On September 9th, 2025 the Make America Healthy Again Commission released the Make Our Children Healthy Again Strategy, a sweeping plan with more than 120 initiatives to reverse the failed policies that fueled America's childhood chronic disease epidemic. The strategy outlines targeted executive actions to advance gold-standard science, realign incentives, increase public awareness, and strengthen private-sector collaboration.

Chaired by U.S. Health and Human Services Secretary Robert F. Kennedy Jr., the Commission is tasked with investigating and addressing the root causes of America's escalating health crisis, with a focus on childhood chronic diseases.

"The Trump Administration is mobilizing every part of government to confront the childhood chronic disease epidemic," Secretary Kennedy said. "This strategy represents the most sweeping reform agenda in modern history — realigning our food and health systems, driving education, and unleashing science to protect America's children and families. We are ending the corporate capture of public health, restoring transparency, and putting gold-standard science — not special interests — at the center of every decision."

"Today's MAHA Commission report is another historic milestone for our country and a testament to President Trump's leadership and commitment to Make America Healthy Again," said U.S. Secretary of Agriculture Brooke L. Rollins. "America's farmers and ranchers are at the heart of the solution — alongside doctors, parents, and communities — to fight chronic disease and protect future generations.

U.S. Secretary of Agriculture Brooke L. Rollins announces voluntary removal of artificial dyes from ice cream on July 14th 2025. Photo courtesy of the USDA

Under this Administration, we are not just talking about healthy outcomes; we are delivering them by securing voluntary commitments to remove artificial food dye from major brands, providing technical assistance to States interested in restricting junk food and soda from SNAP, and providing growers with new tools to maintain and improve soil health, including the introduction of a regenerative farming practice pilot program. Together with our partners at HHS and EPA, we are charting a new course, strengthening the health of our families, and ensuring the United States leads the world with the safest, strongest, and most abundant food supply."

Key Focus Areas of the Strategy:

- **Restoring Science & Research:** Expanding NIH and agency research into chronic disease prevention, nutrition and metabolic health, food quality, environmental exposures, autism, gut microbiome, precision agriculture, rural and tribal health, vaccine injury, and mental health.
- **Historic Executive Actions:** Reforming dietary guidelines; defining ultra-processed foods; improving food labeling; closing the GRAS loophole; raising infant formula standards; removing harmful chemicals from the food supply; increasing oversight and enforcement of direct-to-consumer prescription drug advertising laws; improving food served in schools, hospitals, and to veterans; and reforming Medicaid quality metrics to measure health outcomes.
- **Process Reform & Deregulation:** Streamlining organic certification; easing barriers to farm-to-school programs and direct-to-consumer sales; restoring whole milk in schools; supporting mobile grocery and processing units; modernizing FDA drug and device approval; and accelerating EPA approvals for innovative agricultural products.
- **Public Awareness & Education:** Launching school-based nutrition and fitness campaigns, Surgeon General initiatives on screen time, prioritizing pediatric mental health, and expanding access to reliable nutrition and health information for parents.
- **Private Sector Collaboration:** Promoting awareness of healthier meals at restaurants, soil health and land stewardship, and community-led initiatives, and scaling innovative solutions to address root causes of chronic disease.

With this strategy, the MAHA Commission leads the most ambitious national effort ever to confront childhood chronic disease and Make America Healthy Again.

"Protecting human health and the environment while powering America's comeback isn't just about serving Americans today; it's about ensuring future generations inherit clean air, land, water, and the foundation for healthy lives," EPA Administrator Zeldin said. "The Make America Healthy Again strategy outlines the keys to success from pro-growth policies that advance research and drive innovation to private sector collaboration and increased public awareness. I look forward to continuing to work collaboratively across the federal family to ensure our kids and our environment are protected."

FDA Commissioner Martin A Makary MD, MPH. Photo courtesy of the U.S. Food and Drug Administration

"For too long health care has used a reactive approach to chronic diseases," FDA Commissioner Dr. Marty Makary said. "I am pleased to support the findings of the MAHA commission and to promote a more proactive approach, tackling root causes undermining the health and happiness of American children."

"The MAHA Report provides a blueprint for the entire government to focus on solving the chronic disease crisis facing American children," NIH Director Dr. Jay Bhattacharya said. "We must make America healthy again so our children live longer and healthier lives than we will."

Source: The U.S. Department of Health and Human Services

Podiatry

Scientists Identify Diagnostic Aid to Determine Risk of Diabetic Foot Ulcer Recurrence

NIH-funded project shows that trans-epidermal water loss could indicate if wounds are fully healed

A research team funded by the National Institutes of Health (NIH) has identified a diagnostic aid that has the potential to accurately predict the recurrence of diabetic foot ulcers that appear to be fully healed. By measuring the skin's barrier function through a process known as trans-epidermal water loss, or TEWL, scientists were able to determine which wounds were more likely to reopen. TEWL measurements are a major factor in burn care, where deep layers of the skin are often damaged. The findings suggest that full restoration of skin barrier function should be incorporated into existing wound treatment standards to ensure complete wound closure and to better identify patients at risk of wound recurrence.

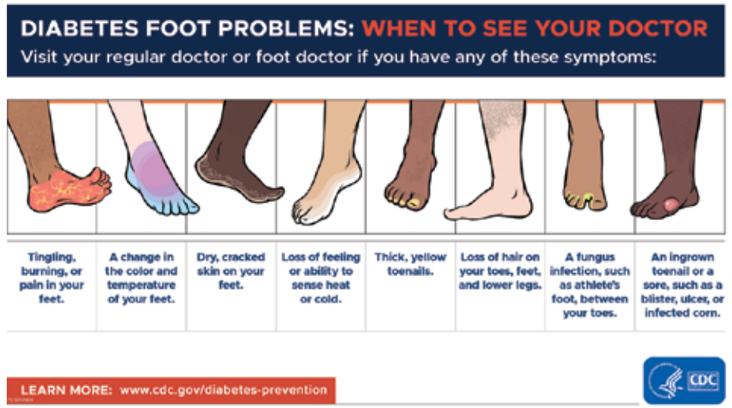
"This study is an important initial step to give clinicians treating diabetic foot ulcers a reliable diagnostic aid for the first time to assess an individual's risk of ulcer recurrence," said Teresa Jones,

Teresa Jones, MD, project scientist for the Diabetic Foot Consortium

MD program director for the Division of Diabetes, Endocrinology, & Metabolic Diseases at NIH's National Institute of Diabetes, Digestive and Kidney Diseases (NIDDK). "Foot ulcers are such a confounding issue with diabetes and being able to determine which wounds are at highest risk for recurrence could save many lives and limbs."

Scientists, working together through the NIDDK Diabetic Foot Consortium, evaluated over 400 study participants who had a diabetic foot ulcer that visually appeared to be closed or healed. They measured TEWL at the site of the foot ulcer and found that 35% of participants with high TEWL (more water loss) reported a wound recurrence by 16 weeks, compared to just 17% for those with low TEWL (less water loss). Participants with higher TEWL were 2.7 times more likely to experience a wound recurrence than participants with low TEWL.

Diabetic foot ulcers are a major complication of diabetes where a break in the skin of the foot is often unnoticed by a patient due to nerve damage, known as neuropathy. They are the leading cause of non-traumatic lower-limb amputations, and untreated or unhealed ulcers significantly increase the risk of death. Wounds that appear to be healed on the surface may not be fully closed below the superficial surface of the skin, hampering the effectiveness of the skin's barrier function to keep in water and keep out pathogens, such as bacteria.



Graphic courtesy of the U.S. Centers for Disease Control and Prevention

References

High Trans-Epidermal Water Loss at the Site of Wound Closure is Associated with Increased Recurrence of Diabetic Foot Ulcers: The NIDDK Diabetic Foot Consortium TEWL Study. Diabetes Care. 2025. DOI: 10.2337/dc25-0300

Source: The National Institutes of Health

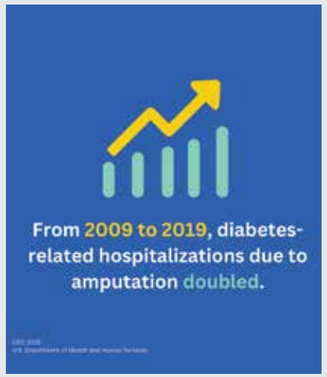
Recent studies conducted on behalf of the National Institutes of Health's National Heart Lung and Blood Institute have determined wounds associated with diabetes mellitus and peripheral artery disease (PAD) have a risk of amputation as high as 25%.

Over time, high blood sugar can cause diabetes complications that raise the chance of lower-limb amputation. These include:

- Peripheral nerve damage resulting in loss of sensation, prevents patients from recognizing discomfort before a condition such as a blister develops.
- Peripheral arterial disease narrows vessels delivering blood to legs and feet can make even a tiny cut heal slowly or not at all.

In patients with arterial disease, revascularization decreases the risk of amputation. Early ABI testing expedites specialty referral and time to revascularization, which can decrease wound healing time.

How lower-limb amputation (LLA) rates vary by community:



From 2009 to 2019, diabetes-related hospitalizations due to amputation doubled. Graphic courtesy of the U.S. Centers for Disease Control and Prevention

Some people with diabetes have a higher risk of LLA due to unequal opportunities to live a healthy lifestyle. This is known as a health inequity. Some people experience several health inequities, which can overlap.

Region: People with diabetes living in the Southern United States have the highest rate of LLAs. This may be because many people in rural areas in Southern states have limited access to health care and healthy foods. People who live in neighborhoods without safe spaces for physical activity may also have a higher risk of LLA.

Race and ethnicity: Among all racial and ethnic groups, Black adults with diabetes had the highest rate of LLAs in 2019. Black adults are 30% more likely to have an LLA compared with White adults with diabetes. They're 65% more likely than Hispanic or Latino adults with diabetes. Barriers to quality care and potential biases in the medical system may contribute to these higher rates.

Health literacy is the degree to which people can find, understand, and use information to inform health-related decisions. When health information is filled with unfamiliar terms, it creates barriers for people with limited health literacy. People with lower health literacy have higher rates of LLAs.

Social determinants of health (SDOH) also impact health outcomes and the risk of LLAs. SDOH are the conditions in which people are born, grow, work, live, and age. Low income, unstable work environments, and unreliable transportation can create barriers in accessing quality health care and preventing LLAs.

A fresh energy supply may shield nerves from diabetic or chemo-induced neuropathy

Researchers demonstrate that transferring healthy mitochondria from support glial cells to nerve cells could reduce nerve pain and degeneration

A research team supported by the National Institutes of Health (NIH) has found that conditions known to cause nerve damage, or neuropathy, disrupt a crucial energy-transfer process between special support cells called satellite glial cells (SGCs) and the sensory neurons they surround. The investigators discovered that the energy producing machinery of cells, known as mitochondria, are transferred through tiny tubes that form between the SGCs and neurons. They found that this transfer became obstructed in animal models of chemotherapy and diabetes, while restoring it attenuated pain behavior and promoted nerve regeneration after nerve injury.

The results of this study highlight a new avenue for potential neuropathy treatments and provide insight into how some of the body's most energy-hungry cells are powered.

"Sensory neurons can run from near the spine all the way to the tips of your toes and fingers," said senior author of the study, Ru-Rong Ji, PhD, a professor of anesthesiology and neurobiology and Director of Center for Translational Pain Medicine, at Duke University School of Medicine, Durham, North Carolina. "When they fire, they carry signals a great distance, which is why these cells have a particularly high demand for energy."

While it has not been clear how these large cells manage to stay energized, Ji and his colleagues have suspected they may lean on a member of the peripheral nervous system's supporting cast. Satellite glial cells (SGCs), which are already known to provide nutrients, cushioning, and other kinds of support to sensory neurons, seemed like a prime candidate.

Prior research has shown that neural support cells are capable of swapping mitochondria with each other, but evidence that this occurs in living organisms has been limited.

For this new study, the authors sought to learn if this phenomenon might be at play between SGCs and the neurons they envelop within clusters of cells near the spine called dorsal root ganglia. To start, they grew mice cells of both types together in a dish and used a high-resolution imaging technique to catch a first glimpse of the supply chain in peripheral neural cells. Then, with a different type of microscopy, they visualized mitochondrial transfer inside tube-like structures in whole dorsal root ganglia from mice.

"The images are quite striking. You can even see bulges in the tubes between cells where the mitochondria are in transit," Ji said.

Through additional experiments, the team confirmed that mitochondria travel through these tunneling nanotubes, or TNTs, in living mice as well and showed that these tubes are necessary for regulating pain. The researchers also learned that SGCs were the primary initiators of tube formation, meaning mitochondrial transfer was mostly a one-way street, from SGCs to neurons.

The researchers delved deeper into the role of mitochondrial transfer by observing how the process in mice was affected by nerve injury. The team learned that smaller neurons were the first to lose mitochondria following injury; SGCs seemed to favor powering the larger cells, offering them more protection. The particular vulnerability of smaller neurons to energy loss might partially explain why damage to the small nerve fibers in the skin is so common among chronic neuropathies, namely small fiber neuropathy.

They examined human dorsal root ganglia as well, finding that this transfer process is not limited to mice. Comparing tissue from donors with and without diabetes, the authors found that diabetic SGCs transferred a significantly reduced number of mitochondria to neurons. Their results thus far indicated that diabetes and some chemotherapy agents can block mitochondrial transfer, thus sapping a nerve's energy reserves and setting the table for nerve injury. They next aimed to determine if restoring mitochondria transfer would reverse the effects.

To find out, they induced either diabetic or chemotherapy-like conditions in two separate groups of mice. The researchers then collected and transferred healthy human SGCs into the diabetes model and healthy mouse SGCs into the chemotherapy model. Both sets of experiments demonstrated that the transferred SGCs increased the animals' pain threshold.

The team achieved similar results when they isolated mitochondria from SGCs first and then transferred the isolated organelles into the animal models. In addition to improved pain thresholds, the team also showed that the treatment potentially restored small nerve branches in the diabetes model.

These initial results are promising and potentially unlock a new channel by which neuropathy could be treated, however, the scientists note there is still much to learn by pulling at the thread of mitochondrial transfer. For instance, does a cell type analogous to SGCs, known as astrocytes, engage in a similar process to power neurons in the brain and spinal cord?

"There's only one way to find out," Ji said. "This and other questions will guide what we examine next."

Reference

Xu, et al., Mitochondrial transfer from glia to neurons protects peripheral neuropathy. Nature. 2026. DOI: https://doi.org/10.1038/s41586-025-09896-x

Source: The National Institute of Neurological Disorders and Stroke

Rural Health

CMS Launches Landmark $50 Billion Rural Health Transformation Program

New federal program aims to transform rural health care nationwide

The Centers for Medicare & Medicaid Services (CMS) unveiled details on how states can apply to receive funding from the $50 billion Rural Health Transformation Program created under the Working Families Tax Cuts Act to strengthen health care across rural America. This unprecedented investment is designed to empower states to transform the existing rural health care infrastructure and build sustainable health care systems that expand access, enhance quality of care, and improve outcomes for patients.

"Rural communities are the bedrock of America. They have waited too long for Washington to act. Now, at last, we are acting with the largest investment ever made to improve health care for rural Americans," said U.S. Health and Human Services Secretary Robert F. Kennedy, Jr. "This $50 billion program is about delivering dignity and dependable care to rural communities, making sure every American has access to affordable, high-quality treatment."

"This program is a historic investment that will catalyze needed change in rural health systems and improve lives for generations to come," said CMS Administrator Dr. Mehmet Oz. "For too long, when it comes to health care access and infrastructure, we've left behind the backbone of America. That stops now with this program that will spark real change for rural health care."

The Rural Health Transformation Program invites all 50 states to apply for funding to address each state's specific rural health challenges. The Program enables states to reimagine care delivery and develop innovative, enduring, state-driven solutions to tackle the root causes of poor health outcomes specific to rural America.

Dr. Oz serves as the 17th Administrator for the Centers for Medicare & Medicaid Services under HHS Secretary Robert Kennedy, Jr., and President Donald Trump. He is a Professor Emeritus at NY Presbyterian-Columbia Medical Center and received his undergraduate degree from Harvard University and obtained a joint MD and MBA from the University of Pennsylvania School of Medicine and Wharton Business School. Photo courtesy of the Centers for Medicare & Medicaid Services

The Program has five strategic goals, grounded in the statutorily approved uses of funds:

- Make rural America healthy again: Support rural health innovations and new access points to promote preventative health and address root causes of diseases.
- Sustainable access: Help rural providers become long-term access points for care by improving efficiency and sustainability.
- Workforce development: Attract and retain a highly skilled health care workforce by strengthening recruitment and retention of health care providers in rural communities.
- Innovative care: Spark the growth of innovative care models to improve health outcomes, coordinate care, and promote flexible care arrangements.
- Tech innovation: Foster use of innovative technologies that promote efficient care delivery, data security, and access to digital health tools by rural facilities, providers, and patients.

The $50 billion program funding will be allocated to approved states over five years, with $10 billion available each year beginning in federal fiscal year 2026. Half of the funding will be evenly distributed to all states with an approved application. The other half will be awarded to approved states based on individual state metrics and applications that reflect the greatest potential for and scale of impact on the health of rural communities.

The deadline for states to apply is November 5, 2025. There is only one opportunity to apply for funding and one application period for this program. CMS will announce awardees by December 31, 2025, and will partner with states over the program period to ensure strong oversight and successful implementation of initiatives with lasting impact.

The Trump Administration is driving nationwide change to envision new possibilities for rural health care and build a future where all Americans, regardless of where they live, receive the care they deserve.

Source: The U.S. Department of Health and Human Services

HHS Dispatches More Than 70 Public Health Service Officers to Strengthen Care in Tribal Communities

The U.S. Department of Health and Human Services announced the mobilization of more than 70 Public Health Service officers from the U.S. Public Health Service (USPHS) Commissioned Corps to Indian Health Service (IHS) facilities across the country. This action delivers on Secretary Kennedy's promise to strengthen the IHS, revitalize tribal health care, and ensure Native communities receive the high-quality medical support they deserve.

Public Health Service officers, drawn from both leadership and frontline ranks, will be detailed to priority IHS sites identified as facing the most urgent staffing shortages. Senior Public Health Service officers will be detailed to strengthen leadership and operations, while additional officers will address the most urgent frontline staffing needs at IHS facilities. Today's announcement represents one of the largest single details of Public Health Service officers to the IHS in recent years and underscores the Trump Administration's commitment to improving health outcomes in Indian Country.

"For too long, tribal communities have gone without the care they deserve," said HHS Secretary Robert F. Kennedy, Jr. "With vacancy rates above 30%, this mobilization takes bold action to close gaps and deliver timely, quality care to Native families. By working hand-in-hand with Tribal leaders, providers, and families, we are restoring trust and driving the mission to Make America Healthy Again — starting in Indian Country."

Strengthening Public Health Systems and Services in Indian Country Recipient Map. Graphic courtesy of the U.S. Centers for Disease Control and Prevention

"Mobilizing Public Health Service officers to IHS facilities allows us to better meet the health needs of our tribal communities," said IHS Acting Director Benjamin Smith. "By complementing our existing teams, we will work together to expand access to preventive care, improve chronic disease management, and advance overall wellness across Indian Country."

"Our Public Health Service officers do incredible work on the front lines, bringing expertise, dedication, and leadership across the country," said Acting Assistant Secretary for Health & Head of the United States Public Health Service Commissioned Corps Dr. Dorothy Fink. "Their efforts will ensure Tribal communities receive timely, high-quality, and culturally responsive care. This mobilization is a testament to the skill and commitment of our officers and their vital role in strengthening public health across Indian Country."

The IHS serves approximately 2.7 million American Indians and Alaska Natives across 574 federally recognized Tribes. Staffing shortages have long undermined its ability to meet demand, leaving patients without consistent access to care. HHS has worked closely with Congressional members on this action, including:

- Senator Kevin Cramer (R-ND): "Adding a physician to the Turtle Mountain Service Unit from the US Public Health Commissioned Corps is great news for the entire area. It immediately increases access to care, workforce capacity, and strengthens our commitment to meeting the health challenges in Indian country."

Photo courtesy of the Cow Creek Band of Umpqua Tribe of Indians

- Senator Steve Daines (R-MT): "Montana is home to 12 federally recognized tribes, and supporting our tribal communities is a top priority for the Treasure State. I applaud this action by President Trump and Secretary Kennedy to support IHS facilities in Crow Agency and Browning, so that Montanans living on our reservations have access to high-quality medical care and services they deserve."
- Senator John Hoeven (R-ND): "We appreciate HHS deploying public health care officers, including a physician to Turtle Mountain, to help improve access to vital health care services in tribal communities," said Senator John Hoeven. "Having an additional physician at Turtle Mountain will help individuals in the Belcourt area to access better, more timely care."
- Rep. Troy Downing (R-MT): "Strengthening access to high-quality healthcare for Montana's tribal communities is vitally important, and the Indian Health Service plays a key role in meeting their needs. I applaud HHS for recognizing this and deploying additional personnel to the Crow Service Unit so that my constituents in Indian Country have the resources to improve health outcomes."
- Rep. Paul Gosar (R-AZ): "These dedicated officers bring critical expertise that will strengthen operations, improve patient care, and ensure tribal communities receive the timely and quality health services they deserve. This action reflects the Trump Administration's firm commitment to addressing longstanding health disparities in Indian Country."
- Rep. Dusty Johnson (R-SD): "I'm grateful for HHS's assistance — there are nursing shortages across America, especially in rural America, and especially on reservations. The United States government must uphold its trust and treaty obligations. I've been calling for IHS reforms for years to improve the patient experience, and HHS's help will go a long way to ensure tribal members can access care."
- Rep. Adrian Smith (R-NE): "I am pleased to see the Trump administration take meaningful action to support regional healthcare efforts. Patients from northern Nebraska who receive care from IHS facilities on the Pine Ridge Indian Reservation will benefit from this significant increase in staffing."
- Rep. Eli Crane (R-AZ): "I applaud this announcement by the U.S. Department of Health and Human Services, which will strengthen healthcare for tribal citizens. By sending nurses, a medical technologist, and other professionals to AZ-02, these IHS facilities will receive much-needed support. We are grateful for this decision to invest in rural and tribal communities that are all too often overlooked."
- Rep. Julie Fedorchak (R-ND): "The health care needs in Indian Country are significant — I've heard that loud and clear from North Dakota's tribal chairs and health care providers. Today's decision is great news and the impact will be felt immediately in Belcourt. I commend Secretary Kennedy and President Trump for recognizing this and taking action."

"For too long, tribal communities have gone without the care they deserve. With vacancy rates above 30%, this mobilization takes bold action to close gaps and deliver timely, quality care to Native families. By working hand-in-hand with Tribal leaders, providers, and families, we are restoring trust and driving the mission to Make America Healthy Again — starting in Indian Country."

— HHS Secretary Robert F. Kennedy, Jr.

This detail of Public Health Service officers is part of a broader HHS initiative to reduce critical staffing shortages at IHS facilities, strengthen leadership in underserved locations, and deliver culturally competent, community-centered care in partnership with Tribal Nations.

Source: The U.S. Department of Health and Human Services

Secretary Kennedy Visits Alaska to Highlight Tribal and Rural Health Priorities

In August of 2025, U.S. Department of Health and Human Services (HHS) Secretary Robert F. Kennedy, Jr. traveled to Alaska to highlight the vital role of rural hospitals and affirm his deep commitment to Tribal communities. U.S. Senators Dan Sullivan and Lisa Murkowski hosted Secretary Kennedy for two of the days showcasing the state's health care challenges and successes and promoting the benefits of President Trump's historic One Big Beautiful Bill.

"I'm deeply grateful to Senator Sullivan and Senator Murkowski for their warm welcome and for bringing me to Alaska to meet the people shaping health care on the front lines," Secretary Kennedy said. "I want to especially thank the Tribal leaders and rural providers who shared their stories, challenges, and vision for their communities. Native health is not a footnote in my administration — it's a top priority. We're committed to strengthening rural hospitals, upholding Tribal sovereignty, and delivering real results through bold federal reforms like the One Big Beautiful Bill's Rural Health Transformation Fund."

"It was great welcoming Secretary Kennedy to Alaska to meet with key health care stakeholders and discuss our state's unique challenges, especially in rural and Native communities," Senator Sullivan said. "Secretary Kennedy reiterated his strong commitment to improving health care access in Alaska and clarified that the One Big Beautiful Bill does not cut Medicare or Medicaid funding. I look forward to working with him to implement its major provisions and deploy the hundreds of millions coming to strengthen our health care system."

"Health care in Alaska is uniquely challenging due to our vast geography, provider shortages, and limited infrastructure — making consistent, quality care difficult to access, especially in rural areas. I've visited villages and remote communities across the state to see clinics, talk with providers, and hear directly from Alaskans about their experiences. Their stories continue to drive me to fight for better access and affordability, because for Alaskans, timely care can literally mean the difference between life and death," Senator Murkowski said. "I appreciate Secretary Kennedy spending time in Alaska to hear from those working every day to improve the health and well-being of Alaskans, and I look forward to working with him and his team to turn those insights into lasting change.

Photo courtesy of The United States Department of Health and Human Services

Photo courtesy of The United States Department of Health and Human Services

"On August 5, Secretary Kennedy began his visit in Anchorage where Alaska Native Tribal Health Consortium and Southcentral Foundation leaders guided him through the Alaska Native Medical Center. He then joined Tribal leaders at the Alaska Mega Meeting, chaired by Chief Bill Smith, for a roundtable on Medicaid access, tribal self-governance, food sovereignty, and rural health care.

Later that day, Secretary Kennedy joined Senators Sullivan and Murkowski, Chief Smith, and Yukon Kuskokwim Health Corporation President Dan Winkelman for a press conference where he emphasized the Administration's unwavering focus on Tribal and rural health.

That afternoon, Secretary Kennedy met with leaders from Alaska's Sole Community and Regional Hospitals, including Fairbanks Memorial, Central Peninsula, Bartlett Regional, Mat-Su Regional, Alaska Regional, and Providence. The roundtable addressed the unique challenges facing rural hospitals and showcased how the Rural Health Transformation Fund can revitalize these facilities and position them for long-term success.

On August 6, Senators Sullivan and Murkowski joined Secretary Kennedy in Fairbanks for a tour of the Chief Andrew Isaac Health Center, led by Tanana Chiefs Conference leadership.

Secretary Kennedy then traveled to Tanana Village, where he held a working lunch with the Tribal Council and engaged with students and community members at the Maudrey J. Sommer School. He wrapped up the day with a visit to the Tanana Health Clinic, hosted by Executive Director Victor Joseph, and toured the site of the new health clinic, now under construction.

On August 7, Secretary Kennedy traveled to Kenai, where he met with leaders of the Kenaitze Indian Tribe for a roundtable focused on specific ways HHS' Indian Health Services can help with pressing issues. Following the discussion, Tribal leaders led him on a tour of the Dena'ina Wellness Center and the Tribal Henu Community Wellness Court. Secretary Kennedy then visited two high tunnel greenhouses, a hydroponics container farm, and a community garden — highlighting the Tribe's forward-thinking approach to nutrition, community wellness, and food sovereignty.

Secretary Kennedy spent lunch with Tribal leaders discussing the urgent challenges facing local fisheries, including the decline of king salmon populations and its impact on food security and cultural traditions. Following the meal, he toured the Kenaitze Tribe's educational fishery facility, where he learned about the Tribe's efforts to restore salmon runs, engage youth in traditional practices, and protect long-term sustainability through hands-on stewardship and environmental education.

Secretary Kennedy concluded his trip on August 8 in Soldotna, where Knik Tribal Council's Richie Porter and Cook Inlet Tribal Council President Gloria O'Neill shared insights into the Tribe's innovative approaches to nutrition, wellness, and community health — and their leadership in building a healthier future for Native communities.

Source: The United States Department of Health and Human Services

Photo courtesy of The United States Department of Health and Human Services

Leading Causes of Death in Rural America

One in five people in the U.S. live in rural areas. They are more likely than urban residents to die early from the following leading causes of death:

- Heart disease
- Cancer
- Unintentional injuries
- Chronic lower respiratory disease, or CLRD
- Stroke

Why rural residents have higher health risks

The following demographic, environmental, economic, and social factors might put rural residents at higher risk of death from public health conditions:

- Older age and more illness than their urban counterparts
- Higher rates of cigarette smoking, high blood pressure, and obesity
- Less leisure-time physical activity and lower seatbelt use
- Higher rates of poverty

Photo courtesy of the U.S. Centers for Disease Control and Prevention

- Less access to healthcare and health insurance

What can be done to improve the health of rural communities

A CDC report provides data from 2010-2022 on the widening gap in some causes of preventable early deaths between rural and urban areas. The findings can help guide local public health programs to reduce these health risks by:

- Screening patients for high blood pressure
- Increasing cancer prevention and early detection
- Encouraging physical activity and healthy eating
- Promoting smoking cessation
- Promoting motor vehicle safety
- Treating opioid use disorder

The findings in this report also highlight the need to understand and address the social, environmental, and structural factors contributing to disparities in preventable early deaths between rural and urban areas.

Source: The U.S. Centers for Disease Control and Prevention

Preventable deaths in rural America in 2022

In 2022, many deaths in rural America were potentially preventable, including 20,000 from heart disease and stroke, 6,000 from cancer, 10,000 from unintentional injuries, and nearly 6,000 from chronic lower respiratory disease.

Administration for Community Living Awards $60 Million to Advance Make America Healthy Again Agenda

The U.S. Department of Health and Human Services' (HHS) Administration for Community Living (ACL) announced $60 million in new grant awards to states, territories, tribes, and local organizations supporting older adults and Americans with disabilities. These awards will strengthen existing programs that protect health, preserve independence, and support caregivers — key priorities of the Make America Healthy Again agenda.

"We are directing resources where they matter most — prevention, independence, and dignity," HHS Secretary Robert F. Kennedy, Jr. said. "These grants restore health, cut through bureaucracy, and ensure every American — especially seniors and people with disabilities — can live healthy, independent, and dignified lives."

This September, ACL awarded 59 grants to recipients across the nation. These investments will bolster the health and wellbeing of the nation's most vulnerable citizens by ensuring federally funded programs and resources provide as much efficiency, innovation, and quality as possible.

Together, these grants will enhance tried and tested programs for preventing falls among seniors, managing chronic conditions, reducing hospitalizations and care costs, advancing state caregiver strategies, funding dementia-capable programs in Indian County and across the national aging network, and enhancing senior nutrition programs.

These grants will also aid state-based programs in implementing the RAISE Family Caregivers Act recommendations and bolster funding for the National Center for Benefits Outreach & Enrollment and the Senior Medicare Patrol Resource Center — programs that ensure older adults and people with disabilities can access benefits and protect themselves against fraud. Additionally, these resources will aid efforts to expand elder justice innovations and adult protective services in tribal communities to prevent abuse, neglect, and exploitation, as well as supporting services for Holocaust survivors and other older adults with a history of trauma through person-centered, trauma-informed programs.

Mary Lazare, Principal Deputy Administrator, serving as the senior official performing the duties of the ACL Administrator and Assistant Secretary for Aging. Photo courtesy of the Administration for Community Living

ACL's $60 million investment in these resources and programs will further the President's mission to Make America Healthy Again and support the health, dignity, and independence of our most vulnerable Americans.

"Make America Healthy Again means investing in prevention, empowering families to take control of their well-being, and strengthening community supports," said Acting ACL Administrator and Assistant Secretary for Aging Mary Lazare. "These grants reflect our commitment to building a system that works for people, not against them."

Source: The U.S. Department of Health and Human Services

Announcing the "AI Agent Standards Initiative" for Interoperable and Secure Innovation

The Center for AI Standards and Innovation (CAISI) at NIST announced the launch of the AI Agent Standards Initiative. The Initiative will ensure that the next generation of AI — AI agents capable of autonomous actions — is widely adopted with confidence, can function securely on behalf of its users, and can interoperate smoothly across the digital ecosystem. Working in coordination with other federal partners, including the Information Technology Laboratory (ITL) at NIST, CAISI aims to foster the emerging ecosystem of industry-led AI standards and protocols while cementing U.S. dominance at the technological frontier.

AI agents can now work autonomously for hours, write and debug code, manage emails and calendars, and shop for goods, among other emerging use cases. While the productivity promise is enticing, the real-world utility of agents is constrained by their ability to interact with external systems and internal data. Absent confidence in the reliability of AI agents and interoperability among agents and digital resources, innovators may face a fragmented ecosystem and stunted adoption. To address this concern, NIST, including CAISI, aims to foster industry-led technical standards and protocols that build public trust in AI agents, catalyze an interoperable agent ecosystem, and diffuse their benefits to all Americans and across the world.

CAISI, with ITL at NIST, will collaborate with the National Science Foundation and other interagency partners to advance the Initiative along three pillars:

Illustration credit N. Hanacek courtesy of the National Institute of Standards and Technology

1. Facilitating industry-led development of agent standards and U.S. leadership in international standards bodies.
2. Fostering community-led open source protocol development and maintenance for agents.
3. Advancing research in areas of AI agent security and identity to enable new use cases and to promote trusted adoption across sectors of the economy.

In the months ahead, NIST will announce research, guidelines, and further deliverables for the AI Agent Standards Initiative. To support the interoperable and secure adoption of AI agents, NIST will leverage a full toolbox for public input, including convenings, RFIs, listening sessions, and other approaches. Stakeholders can inform the Initiative today through responses to CAISI's Request for Information on AI Agent Security (due March 9) and to ITL's AI Agent Identity and Authorization Concept Paper (due April 2). Beginning in April, CAISI will hold listening sessions on sector-specific barriers to AI adoption, with a focus on AI agents, to inform concrete projects to spur confident adoption in key sectors. CAISI partners with industry at the frontier of AI, and, with the launch of the Initiative, is working to support the development of a trusted and interoperable AI agent ecosystem that advances human flourishing and U.S. leadership.

Source: The National Institute of Standards and Technology

Researchers Develop AI Tool to Predict patients at Risk of Intimate Partner Violence

NIH-funded, automated clinical decision support could facilitate timely interventions for at-risk patients years before they might otherwise seek help

A team of researchers funded by the National Institutes of Health (NIH) have developed an artificial intelligence (AI) tool that provides decision support to clinicians by predicting if patients are at risk of intimate partner violence (IPV). Using data routinely collected during medical visits, the team trained a machine-learning model, a type of AI, that was highly accurate in detecting IPV among patients in a study.

IPV refers to abuse from current or former partners that results in serious effects such as potentially life-threatening injuries, chronic pain and mental health disorders. It affects millions of people in the United States — both men and women — at some point in their lives. However, many cases go undetected, because patients can be hesitant to disclose abusive relationships due to safety concerns, fear and stigma.

In their study, the research team led by researchers from Harvard Medical School, Boston, introduced three AI models for IPV detection in healthcare settings, comparing their performance in predicting it.

"This clinical decision support tool could make a significant impact on prediction and prevention of intimate partner violence," said Dr. Qi Duan, PhD, director of the Division of Health Informatics Technologies at NIH's National Institute of Biomedical Imaging and Bioengineering (NIBIB). "Given the prevalence of cases, the tool could be a game-changing asset to public health."

Many cases of IPV go unrecognized, leading to missed opportunities for timely intervention, according to the study authors. They report that current screening tools capture only a fraction

Photo credit tippapatt, Adobe Stock, courtesy of the National Institute of Biomedical Imaging and Bioengineering

of cases, while clinical and imaging records provide valuable information in detecting IPV risk. Notably, radiologists have an advantage in recognizing the signs of IPV, including the frequency of certain patterns of physical trauma.

The researchers used several years of hospital data from nearly 850 affected female patients and 5,200 unaffected age- and demographics-matched control patients. Because the collection of relevant clinical data varies across healthcare settings, the team designed two distinct AI models, one trained on structured patient data, in table form, and another trained on unstructured patient data from medical notes, including radiology reports. Further, they developed a multimodal model that is a fusion of both structured and unstructured data.

All the models achieved a high performance in the study. However, the multimodal fusion model outperformed the models that used either just structured or unstructured data. It performed accurately 88% of the time. Both the tabular model and the fusion model can detect IPV risk on average more than three years before patients enroll at hospital-based domestic abuse intervention centers. While the tabular model achieved slightly earlier recognition of IPV risk, the fusion model was able to detect more IPV cases in advance.

The fusion model achieved more stable performance than relying on either modality alone. The scientists explained that the different modalities are processed separately and only merged at the prediction stage. They found that the tabular framework is particularly relevant in healthcare, where there are variations across different hospitals in data availability and in the recording of unstructured data.

The researchers emphasized that the use of AI tools such as their machine learning models could assist healthcare providers in having timely conversations with patients about IPV and connecting those patients with appropriate support resources. Such AI tools are not intended for making definitive diagnoses.

"For decades, our healthcare system has depended largely on patient self-disclosure to identify intimate partner violence, leaving many cases unrecognized and unsupported," said Bhati Khurana, MD, senior author of the study and an emergency radiologist at Mass General Brigham and associate professor of radiology at Harvard Medical School. "Our work represents a fundamental shift from reactive disclosure to proactive risk recognition within routine clinical care. By analyzing patterns already present in healthcare data, this approach supports healthcare clinicians in initiating earlier, safer and more informed conversations with patients."

According to the researchers, when used in a patient-centered manner, this tool can serve as a key component of a proactive approach to IPV intervention, enabling timely and effective support and ultimately leading to improved long-term health outcomes for at-risk patients. The team developed guidance at the

Image credit the state of California

project website to help clinicians thoughtfully approach conversations with patients.

"The goal is never to force disclosure, but to help clinicians communicate with patients in a supportive way and to connect them with resources and support," Khurana said.

The research team plans to use AI models to develop a decision-support tool embedded in electronic medical record systems to provide real-time IPV risk evaluations in clinical settings.

For more about IPV: About Intimate Partner Violence | Intimate Partner Violence Prevention | CDC

For more about Automated IPV Risk Support: https://bhartikhurana.bwh.harvard.edu/airs

This research was co-funded by NIBIB grant R01EB032384 and the NIH Office of the Director.

Reference

Gu J, Villalobos Carballo K, Ma Y, Bertsimas D, and Khurana B. Leveraging multimodal machine learning for accurate risk identification of intimate partner violence. Nature Portfolio Journal: Women's Health. 2026. DOI: 10.1038/s44294-025-00126-3

Source: The National Institute of Biomedical Imaging and Bioengineering

Women's Health

Breast Cancer Risk in Younger Women May be Influenced by Hormone Therapy

NIH study could help to guide clinical recommendations for hormone therapy use among women under 55 years old

Scientists at the National Institutes of Health (NIH) have found that two common types of hormone therapy may alter breast cancer risk in women before age 55. Researchers discovered that women treated with unopposed estrogen hormone therapy (E-HT) were less likely to develop the disease than those who did not use hormone therapy. They also found that women treated with estrogen plus progestin hormone therapy (EP-HT) were more likely to develop breast cancer than women who did not use hormone therapy. Together, these results could help to guide clinical recommendations for hormone therapy use among younger women.


"Our study provides greater understanding of the risks associated with different types of hormone therapy, which we hope will help patients and their doctors develop more informed treatment plans," said NIEHS scientist and lead author Katie O'Brien, PhD. Photo courtesy of the National Institute of Environmental Health Sciences

The two hormone therapies analyzed in the study are often used to manage symptoms related to menopause or following hysterectomy (removal of uterus) or oophorectomy (removal of one or both ovaries). Unopposed estrogen therapy is recommended only for women who have had a hysterectomy because of its known association with uterine cancer risk.

"Hormone therapy can greatly improve the quality of life for women experiencing severe menopausal symptoms or those who have had surgeries that affect their hormone levels," said lead author Katie O'Brien, PhD, of NIH's National Institute of Environmental Health Sciences (NIEHS). "Our study provides greater understanding of the risks associated with different types of hormone therapy, which we hope will help patients and their doctors develop more informed treatment plans."

The researchers conducted a large-scale analysis that included data from more than 459,000 women under 55 years old across North America, Europe, Asia, and Australia. Women who used E-HT had a 14% reduction in breast cancer incidence compared to those who never used hormone therapy. Notably, this protective effect was more pronounced in women who started E-HT at younger ages or who used it longer. In contrast, women using EP-HT experienced a 10% higher rate of breast cancer compared to non-users, with an 18% higher rate seen among women using EP-HT for more than two years relative to those who never used the therapy.

According to the authors, this suggests that for EP-HT users, the cumulative risk of breast cancer before age 55 could be about 4.5%, compared with a 4.1% risk for women who never used hormone therapy and a 3.6% risk for those who used E-HT. Further, the association between EP-HT and breast cancer was particularly elevated among women who had not undergone hysterectomy or oophorectomy. That highlights the importance of considering gynecological surgery status when evaluating the risks of starting hormone therapy, the researchers noted.

"These findings underscore the need for personalized medical advice when considering hormone therapy," said NIEHS scientist and senior author Dale Sandler, PhD. "Women and their health care providers should weigh the benefits of symptom relief against the potential risks associated with hormone therapy, especially EP-HT. For women with an intact uterus and ovaries, the increased risk of breast cancer with EP-HT should prompt careful deliberation."

The authors noted that their study is consistent with previous large studies that documented similar associations between hormone therapy and breast cancer risk among older and postmenopausal women. This new study extends those findings to younger women, providing essential evidence to help guide decision-making for women as they go through menopause.

Reference

O'Brien, K., et al. "Hormone therapy use and young-onset breast cancer: a pooled analysis of prospective cohorts included in the Premenopausal Breast Cancer Collaborative Group." Lancet Oncol 2025; 26: 911–23.

Source: National Institute of Environmental Health Sciences

NIH Researchers Discover Tissue Biomarker that May Indicate Higher Risk of Aggressive Breast Cancer Development and Death

Using artificial intelligence, scientists characterized tissue samples from more than 9,000 women

By Mustapha Abubakar, MD, PhD, Division of Cancer Epidemiology and Genetics, National Cancer Institute

Researchers at the National Institutes of Health (NIH) have identified a series of changes in the architecture and cell composition of connective tissues of the breast, known as stromal tissue, that is associated with an increased risk of developing aggressive breast cancer among women with benign breast disease, and poorer rates of survival among women with invasive breast cancer.

Having mammograms regularly can lower the risk of dying from breast cancer. Photo courtesy of the U.S. Centers for Disease Control and Prevention

This process, which they call stromal disruption, could potentially be used as a biomarker to identify women with benign breast disease who are at high risk of developing aggressive breast cancers, as well as those with breast cancer who may be at increased risk of recurrence or death.

Such insights could help inform the development of cancer prevention and treatment strategies that target the stromal microenvironment. In addition, stromal disruption is inexpensive to assess and could be widely adopted, particularly in low-resource settings where molecular analysis is impractical or very expensive.

In the study, the researchers used machine learning to detect subtle changes in the stroma of 4,023 donated samples of healthy breast tissue, 974 biopsies of tissue with benign breast disease, and 4,223 biopsies of tissue with invasive breast cancer.

- In women who donated healthy breast tissue, the same risk factors associated with aggressive breast cancer — including younger age, having two or more children, being self-reported as Black, obesity, and family history — were also associated with increased stromal disruption, suggesting that those risk factors may act via a common stromal tissue pathway.
- In women with benign breast disease, having substantial stromal disruption on biopsy was associated with a higher risk of developing aggressive breast cancer and more rapid onset of breast cancer than having minimal or no stromal disruption.
- In women with invasive breast cancer, increased stromal disruption was associated with more aggressive disease phenotypes and poorer survival outcomes, particularly for women with estrogen receptor-positive breast cancer, the most common subtype.

Graphic courtesy of the Veterans Health Affairs Office of Women's Health

The researchers noted that factors such as chronic inflammation and wound healing play a role in stromal disruption. They emphasized the need for additional studies to determine whether strategies to prevent these tissue changes from occurring, such as lifestyle changes and anti-inflammatory medications, might be beneficial to reduce aggressive breast cancer risk, particularly among high-risk women.

Source: The National Cancer Institute

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