

VICTOR DZAU:

So at this time, I'd like to deliver the 2023 President's Address. But to begin, I'd like to acknowledge that this year's meeting falls on Indigenous Peoples Day. And when we honor the immense contribution Indigenous People have made to our country, I'm reminded of the words of Robin Wall Kimmerer, a scientist, educator, enrolled member of Citizen Potawatomi Nation and her best-selling book, 'Braiding Sweetgrass', eloquently weaves together scientific knowledge with Indigenous way of knowing. And she said, "All powers have two sides, the power to create and the power to destroy. And we must recognize them both, but invest our gifts on the side of creation." These words resonate so much in this moment. In science and medicine, we've witnessed the power of creation every single day. We are living in a time of incredible innovation that would have been unimaginable a generation ago. Just last week, as I said, two of our NAM members, class of 2022, won Nobel Prize for their groundbreaking work on NAM mRNA technology, the basis, of course, for Covid-19 vaccine that many of us received and saved millions of lives.

Also in recent years, Nobel Prizes have recognized other groundbreaking developments such as life saving cancer immunotherapies and, of course, CRISPR gene editing, which has the potential to cure devastating diseases. And there are many more impressive scientific advances that promise to transform medicine and health. But at the same time, entrenched systemic inequities have the power to destroy progress toward achieving population health. As you see in this slide, life expectancy in the United States has dropped for the second year in a row. We're witnessing a record high rates of maternal mortality, especially with black women. And more Americans die of gun related injuries in 2021 than any other year on record. And we're still recovering from the continuous effects of pandemic, even as we fall behind in preparing for future global outbreaks. Yeah, the power to destroy is also clear in the climate catastrophe unfolding all over the globe. Millions of people across the world, such as those in Ethiopia, Kenya, Somalia are facing a worst drought in the last 40 years.

And over the summer, millions of Americans suffered extreme temperatures during months of long heatwaves. Certainly, we know that in the United States in August, the deadliest US wildfire in the century hit Maui, killing more than 100. How can we change this trajectory? As Dr Kimmerer said, " We must invest in our power to create", to create a better future for all of us. And here at NAM, that's exactly what you do, that's what exactly what we aim to do. We can bring the best and the brightest together to solve the complex challenges and chart a path forward from an evidence-based perspective. We can set the national and global agenda, mobilize resources, and urge action. When I delivered this address last year, we were marking our 50th anniversary, and I said, while we could and should be proud of 50 years of progress, we also have to envision our role in the complicated, challenging future. In a subsequent piece I wrote for JAMA, shown here, I noted first, we must become more proactive and forward looking, we have to identify emerging problems and areas of opportunity by using state-of-the-art technology, we have to embrace partnership, we have to commit not only to collaborations but true convergence across all fields.

We need to maintain deep commitment to diversity, equity, inclusion and earn the public's trust through a future-oriented communication strategy. Well, over the last year many have helped us build on these concepts, and together we crafted a new five-year strategic plan for NAM to make these ideas operational. Starting in 2024, more than 100 of you volunteered for the Strategic Planning Committee and has representation of all NAM sections and all different diverse interests. So I'm so thankful, first of all, and grateful for all your work in helping us craft this plan. Now all organizations need a road map and

this strategic plan which I presented yesterday at the business meeting, and I'll go over more detail today, should prepare us to anticipate and respond to whatever challenges may come our way. It will help prioritize efforts, allocate resources, align around shared values, and ensure our goals are backed up by strong science. Example, today we build upon a first strategic plan, which was written and adopted in 2018, shortly after we became a full-fledged academy.

Well, little did we know then what laid ahead of us, the pandemic, the racial reckoning, the rapid increase in extreme weather events, continued increasing gun violence, and a landmark Supreme Court decisions that impact our health and health care system, just to name a few. Most of us could have never predicted these fully, these events and their far-reaching consequences. But our 2018 strategic plan prepared us well and enabled us to tackle these issues as they arise. So, for example, the plan informed the national and global response to Covid-19. We doubled down our effort and our commitment to diversity, equity and inclusion, we launched our Climate Grand Challenge, assembled task force to address issues of gun violence and of course, in women's health. Although we couldn't have predicted the events, our plan prepared us well to respond. And it is in this context that our new strategic plan will also help us to be prepared for the unexpected. So our upcoming NAM plan, starting in the beginning of 2024 to the end of 2028, which was well received yesterday at our business meeting, has a clear vision, Health for everyone, everywhere.

Our mission is to advance science, inform policy, catalyze action to achieve human health, equity and well-being. Our plan is built upon the principles and values that we hold dear. Scientific excellence. I wanna make sure, I'm a little out of sync. Scientific excellence, integrity, accountability, innovation, adaptation, anticipation, community engagement, collaboration, inclusion, diversity and equity. I would like to particularly highlight the importance of diversity, equity, inclusivity. Indeed, equity first is our mission statement, secondly, we are committed to actively promoting diversity and inclusivity and addressing racism in all aspects of our work. And in fact, DEI is so foundational to our work, it's also stated as one of our five goals in our new strategic plan. So let me present these strategic goals, which will be the driving force behind our work over the next five years, and of course, beyond our five years, our roadmap to prepare, anticipate, respond to whatever challenges may come our way.

They are centered around science action, transformation, equity, and readiness. Goal number one, advance science, technology and innovation as a foundation for health and medicine. Goal number two, lead, inspire and catalyze evidence-based, informed action on urgent, critical issues and long term societal challenges to health. Goal number three, drive transformation toward a health system that's effective, efficient, equitable, affordable, and continuously learning. Goal number four, lead by integrating inclusion, diversity and equity in all we do. And five, build the readiness of the NAM and the nation to shape the future of health medicine. Now, each of these goals have a set of strategies to help us act and find success. And what I wanna do now is explore with you today how NAM will employ these goals and strategies to help the nation and the world to address the biggest challenges. So one of our goals, really important one, is to lead, inspire and catalyze evidence-informed action on urgent, critical issues and long-term societal challenges.

I can think of no more critical challenge than climate change. Humanity has already irreversibly altered climate, and we are all extremely concerned about the toll climate change is taking on human, health and being. Last week, the council and I issued a statement that underscores our full commitment to reducing carbon dioxide and other greenhouse gases, the single most important step all organizations

must take to slow the pace of climate change. To that end, NAM is working with the entire National Academies to reduce our carbon emissions by 50% by 2030 and achieve net zero emissions by 2050. Importantly, NAM is leading important work through our grand challenge on climate change, human health and equity, which we launched three years ago. It has, as you can see in this slide, five strategic objectives. First communicate about climate crisis to the public as a public health and equity crisis, and educate our workforce. Second, develop a roadmap for systems transformation, which will bring together many sectors of our economy that affect climate and health, such as not only health, but energy, transportation, agriculture, water bring them all together into one macroeconomic framework that centers human health, equity and sustainability.

Third, to catalyze the health sector to reduce its climate footprint and ensure its resilience. Fourth, to accelerate innovating at the intersection of climate, health and equity, and, importantly, reduce climate related health inequities as a cross-cutting effort. The scale of the commitment is huge. Climate health is the largest program ever in the history of our institution, that's IOM and NAM. We raised over \$10 million in funding to date with a large number of staff working on this issue. We've enlisted almost 200 collaborators, including hospital systems, payers, distributors, academia, NGOs, community organizations and the government. You know the US health sector emits 8.5% of nation's total carbon, and that's huge. As health professionals, we have taken the Hippocratic Oath to do no harm. So consequently, we've launched this grand challenge with the Decarbonization Action Collaborative to work to decarbonize the US health sector. It's a public private partnership, also of over 200 plus stakeholders bringing together all actors in health sector to share strategies and take action to decarbonize.

As you can see in this slide, it's co-chaired by Rachel Levine, the Assistant Secretary of HHS who oversees the Office of Climate Health and Equity, George Barrett, the former Cardinal CEO, supply chain, Andrew Witty, the CEO of UnitedHealth Group. And it's a true public-private partnership where all of us are working towards the goal of decarbonization. So the collaborative is structured the following, has a steering committee and it has four different working groups, health care delivery to transform health care delivery to make it more sustainable, to build new models of low carbon care and to build a business case for health system decarbonization, health professional education communication to support education of clinicians and health professions in addressing health related health threats and communicate about them effectively, the policy financing metrics to create a framework for value-based payment models that link reimbursement with sustainable metrics, aligning incentives across the health system, and the supply chain and infrastructure to coordinate across industry, and federal regulatory bodies to enable low carbon innovations.

In this first two-year phase, we celebrated many successes as you can see in the slide. We have produced over 30 different products including video series, webinars, publication, we developed a climate journey map and resource repository to support suppliers in decarbonization efforts, release a series of publications on policy regulatory issues to address the role of payers and health care facilities. But importantly, we recognize that climate change is disproportionately affecting underserved and marginalized communities, which are least able to prepare for or recover from climate events and their impacts. These communities often have no voice in developing policies and programs that directly affect them. For this reason, we launched the Climate Communities Network to bring together leaders from vulnerable communities most impacted by climate change, along with government, philanthropy, academia, and industry to work collaboratively in co-developing solutions on the ground. You know climate change is a long term, all-hands on deck challenge.

And we know there's no easy fix 'cause we need to start immediately. But to this end, we are launching a nationwide movement to mobilize hundreds, if not thousands, of health care organizations to commit to action on climate change and health. This movement, inspired by Don Berwick, who's a member of the collaborative, IHI's successful 100,000 Lives Campaign that kick started the Patient Safety Quality Movement 20 years ago. Our plan is to learn from him and engage payers, government, regulators and creditors to ease the way for health system to make climate change health a top priority. We're launching this movement starting in January 2024. Another important part of a strategic plan is to address emerging science and technology as a foundation for health and medicine. Innovation in this fields like AI, gene editing, regenerative medicine, and increasingly changing health and health care every day and influencing our patients life. And this slide simply shows you that many impressive emerging science technology which are transforming medicine.

And I don't have time to read all of them. However, these events may have major societal implications. And we must address potential risk and ensure equity and access so everyone can benefit from these breakthroughs. Along these lines in 2020, the NAM launched the Committee on Science Technology, and Innovation to develop a multisectoral governance framework to address risks, ethics and equity of emerging science and innovation. Informed by this committee's early efforts, we undertook a consensus study and released a report this August with recommendations to develop a national strategy to integrate equity within an entire innovation ecosystem. We are now engaging stakeholders from academia, government and the private sector to implement these findings. I think that NAM is strategically ready to provide leadership and guidance on breakthrough science technology, but we really have to continue to facilitate national and international collaboration, particularly in the area of equity. In particular providing the leadership and guidance on artificial intelligence, AI, is an urgent priority.

The rapid emergence of AI has enormous potential to revolutionize health and medicine. You know AI algorithms will improve diagnostic, enable personalized treatment, AI driven advances coupled with genomics, biomedical research will identify new therapeutic targets and bring crucial new research insight. And I'm sure many of you have used ChatGPT the large language models, ChatGPT, GPT-4 or five. How many people have used it? I'd like to see a show of hands. Wow, amazing. We all know it can rapidly catalyze, analyze large data sets, learn patterns and structures, and generate novel content, making generative AI a powerful tool for health care. I remember the days when I do discharge summaries and late at night writing SOAP. Well, there's good ways now to saving a lot of time, but do it right. But human touch is absolutely important 'cause unless we address the concerns regarding bias, privacy, and gaps in access and affordability, AI has the potential to cause significant harm. Likewise, generative AI has limitations, concerns we must consider.

These large language models can generate inaccurate, unexpected, or undesired outputs. So crucially, whatever information is fed into tools like ChatGPT and now GPT-4 and five, is stored within the tool's memory, with no way to determine whether information is accurate, reliable or unbiased. So what we need is a thorough examination of potential impacts of AI to develop the right level of governance. So the NAM has really jumped into this and we're leading conversations, providing expert oversight and guidance on how to safely incorporate AI in health and medicine while minimizing risk. The leadership consortium, led by McGinnis, is developing an AI code of conduct and planning workshops and future reports that will address the future of AI in medical education, in health care practice and research innovation. A lot more to talk about, but certainly I won't have time to do that today. We're holding two

major workshops at the end of this month to actually get people together to start moving this way, looking at what are the areas of guidance advice we give to the nation.

Our strategic plan also empowers us to take another urgent crisis facing our society. Declining trust in science, which is being fueled by mis and disinformation. Science and medicine can provide solutions for so many problems. However, it would hope to advance science, technology, innovation as a foundation for health and medicine, the public must have trust in science. We all saw how misinformation eroded trust during the pandemic and public health measures such as masking and vaccination. Disinformation, that is, the deliberate undermining of science has contributed to the years of inaction on climate change. And it's not just vaccines and climate mis and disinformation abound with respect to women's health, seasonal flu, cancer, infectious outbreak, just to name a few. Social media and AI have turbocharged the volume and ease in which misinformation spreads. And of course, recently the legal interventions that have undertaken to prevent scientists from even engaging in research on misinformation.

It's unconscionable and make it so difficult to understand all the root causes and scale of this problem. Even more reason we need to act to address this issue. All this is chipping away at the public's trust in scientists and health professionals. And the recent Pew Research Center poll, less than one-third of US adults say they have a great deal of confidence in medical science to act in the best interest of the public. Only one-third. So NAM and the academies have a special responsibility to help build public trust in science and medicine. This is why we've been working hard to improve how we communicate about science. So first, NAM recently partnered with YouTube to develop principles of elevating credible science information online. There are lots of people who contribute this in this audience, too many for me to cite. But as a result, YouTube has now adopted labels to help viewers identify videos from authoritative sources and has created health content shelves to highlight trustworthy content.

And of course, the WHO, Germany and UK are adopting a similar model based on our work. Next week at the World Health Summit in Berlin, I'll be participating in a roundtable involving WHO, Germany, Google, YouTube, Lancet Commission and others to discuss whether we can advance this existing initiative based on NAM's work to establish a foundation of an internet certification system for credible health information providers. In addition, academies are actively fighting misinformation and provide credible content through initiatives such as based on science which provides evidence-based answers for frequently searched questions online. Next year, we release a consensus study exploring the nature and scope of scientific misinformation to identify solutions. The NAM Academy must also communicate about our own work and to build a public trust and achieve impact. So, in concert with the strategic plan I'm talking to you about today, we will significantly increase our investment in communications.

We are developing a dynamic, innovative, anticipatory communication strategy. As a foremost priority, we must actively work to justify our audience beyond the usual suspects who help and develop new tactics through authentically engaged community and living experience in our own work from start to finish. We also engage social media more effectively and creatively, and we monitor effects of AI on information ecosystem and our relationship with the audience. And we explore how to leverage available tools to increase our impact while protecting our integrity. Another important goal, which I'll talk about now is to address the nation's broken health care and public health systems. We face many health challenges, uneven coverage and access, increasing costs, fragmented care, workforce burnout, clinicians shortages, technological challenges, and a misaligned fee-for-service model that incentivizes

volume over value. To truly make progress as a system, as a society, we must catalyze transformation towards a health system that is effective, efficient, equitable, affordable and continuous learning.

You can see the slide, health spending in US now accounts for over 20% of GDP. And yet our nation's outcomes are consistently worse than those of other industrialized nations. Americans pay higher prices for prescription drugs than any country in the world. Private equity has rapidly entered the health care sector, placing profits over patients and the nation's facing the crisis of physician nursing and health care professional shortages. So building in our history of driving significant improvement in health care, our leadership consortium is leading the charge for creation of a learning health system. Our Vital Directions Initiative identifies a new paradigm for health care delivery, financing progressing towards increasingly value-based centric approach. But I know there's a lot more work for us to do. Our country is in dire need of a framework to restructure benefits design, drive comprehensive payment reform, promote health system transparency, and educate future task force. Well, I believe NAM can drive this conversation in each of these areas and foster the transformation.

Now, I'm not naive. I realize this is a tall order and that political challenges mean our country rarely sees eye to eye on these issues. But we must keep trying. We must be courageous and start to really work toward solutions. Our ultimate goal is to improve the health of the population, health for everyone, everywhere, as stated in our mission statement. As you all know, health care only accounts for 10% of health outcomes. Health is affected by so many factors related to where people live, play, and work. ZIP code is perhaps the strongest predictor of health outcomes and life expectancy. Despite all this, we all know that US continues to invest far less than our peers in social programs. As I wrote in a Lancet paper last year, there really cannot be any health equity without social equity. Therefore, NAM must play a leadership role in addressing issues such as housing, job creation, food security, education and social policies. We must encourage our country to move from sick care to population and to societal and well care health.

Finally, the major challenge of our time cannot be solely addressed within the current medical system. And I recognize people like Ken DeSalvo many others have worked on this issue. But NAM's now planning a new initiative with Duke-Margolis Center to develop a national vision for public health, which includes integration of public health, care delivery with improved alignment across care systems, community organizations and the private sector. This initiative will be co-chaired by myself, Mark McClellan, and new Director of CDC, Mandy Cohen. Our committee will make actionable recommendations on how to best provide up to date public health surveillance in communities, how to build connection and interoperability between data systems, how to create opportunities for collaboration across regional, state, federal agencies and with healthcare delivery. So to achieve an NAM's mission and live up to values we set for ourselves, it's our duty to advance policies that support good health for all.

This means an academy, we need to protect science and medicine from politicization and the constantly shifting socio-political landscape. As leaders in medicine, nursing and health professions, we must uphold our social contract. Society grants our professions trust and respect. But this is predicated on the understanding that we draw upon evidence-based expertise to address the needs of our patients and our community. Well, the recent political actions are immediate threat to this contract. They force providers to grapple with ethical questions on how to provide safe care under regulations that aren't rooted in science. As an academy, we must speak up when government policies negatively impact science, health care and health. The legislative and judicial actions that determine what kind of care we

can or cannot provide, what kind of research we can or cannot be conducted, and when can we engage, or how in these activities threaten the autonomy of medical practice, the nature of scientific research integrity of our system.

I think as an academy, NAM must back evidence-based recommendations and provide insight when policies threaten progress achieving population health. We also need to support each other as colleagues when we communicate on behalf of science and medicine. And above all, we must protect the autonomy of medical practice and integrity of US biomedical enterprise. As a preeminent leader in health policy and biomedicine, we must consider the world as it will be. That means not only investigating the problems of today, but imagining the problems of tomorrow. The nation and the world will turn to us for leadership on how best to respond to many possible health policy and economic futures. So we must prepare society for what lies ahead. And we have outlined an ambitious agenda to do just that. But a crucial part of our plan is ensuring our Academy, NAM, our members and our staff are equipped to rapidly respond. Whatever the need may be, we need to embrace new ways of thinking, new methodologies, and new advanced forecasting techniques, horizon scanning, predictive analysis, and even AI.

We can't pave the way for a better future if we ourselves aren't prepared, proactive, anticipatory and ready to address the challenges I talked about today. So with your help and guidance, I'm confident that the NAM's new strategic plan will guide us through whatever surprises may come our way. However, we do more than simply prepare for the future. Together, we help to create the future that we all want for ourselves and the future generations. As Dr Wall Kimmerer said, " Transformation is not created by tentative wading at the edge." And to truly live out our mission, a healthier future, and a planet for everyone, everywhere, there's no time to waste. So we are laying out a bold vision for our future, and I hope all of you will join us. I know you will. It's gonna take hard work and persistence, but I can't think of anything, any pursuit more worthwhile than this. Let me end by saying what a privilege it is for me to serve this amazing academy of distinguished, outstanding members. And I can tell you, none of this would be possible without you.

So thank you very much (APPLAUSE).