

# Mayo Clinic Q & A - Dr. Cheryl Willman - YouTube Audio

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## SUMMARY KEYWORDS

cancer, patients, mayo, mayo clinic, patient navigator, care, cancer center, mutations, clinical trials, communities, physician, develop, carbon ion, people, cheryl, teams, leading, providers, radiation therapy, home

## SPEAKERS

Dr. Halena Gazelka, Dr. Cheryl Willman, Narrator

### **Narrator** 00:00

Coming up on Mayo Clinic Q&A,

### **Dr. Cheryl Willman** 00:03

I think there's a growing awareness in our culture and our society, that we have to really find ways to disseminate outstanding cancer care to everyone. And that starts by deeply engaging our communities.

### **Narrator** 00:16

As a designated comprehensive cancer center, Mayo Clinic is poised to help lead that change.

### **Dr. Cheryl Willman** 00:22

Mayo is in fact going to develop the world's finest cancer program in research, in how we deliver care to patients, in how we engage our communities, and how we train really the nation and the world's workforce for cancer care and research.

### **Dr. Halena Gazelka** 00:38

Welcome, everyone, to Mayo Clinic Q&A. I'm Dr. Halena Gazelka. This last May, Dr. Cheryl Willman was named executive director of Mayo Clinic Cancer Programs, and director of the Mayo Clinic Cancer Center. In this role, Dr. Willman is leading the expansion and strategic development of Mayo Clinic Cancer Center sites in Florida, Arizona, and Minnesota, as well as newly developing Mayo Clinic global cancer programs in London and Abu Dhabi. How exciting. We are pleased to have Dr. Cheryl Willman on the podcast with me today to discuss a variety of topics related to improving care for patients with cancer. Welcome to the program, Cheryl.

### **Dr. Cheryl Willman** 01:18

Thank you so much, Dr. Gazelka. I'm thrilled to be here.

**Dr. Halena Gazelka 01:21**

I am absolutely delighted Cheryl, to not only get to meet you for the first time today, but also to have you on the podcast. How have your first months at Mayo Clinic been?

**Dr. Cheryl Willman 01:32**

My first few months here in Mayo, I've already spent a great deal of time in the Rochester site, we've had strategic retreats in Florida and Arizona that have been absolutely fantastic and frankly thrilling. Everything I've witnessed, everything I've seen, everything I've become deeply engaged in already have convinced me I made the right choice to come to Mayo. And Mayo is in fact going to develop the world's finest cancer program in research, and how we deliver care to patients, and how we engage our communities, and how we train really the nation and the world's workforce for cancer care and research.

**Dr. Halena Gazelka 02:14**

And we're so excited to have you here. Cheryl. We know that cancer affects such a high percentage of the population at some time during their lifetime. And there's a lot of work going on at Mayo Clinic related to cancer care. Can you tell us some about your efforts to engage our communities? And how population science plays a role in your work?

**Dr. Cheryl Willman 02:34**

Yes, I can. It's a really important aspect of the work of any of the nation's leading cancer centers in this time in our country and really our world. Many years ago, cancer centers were considered these academic silos that conducted research and delivered care, hard to get into, outstanding, not disseminating beyond their communities. Well, that's all changed. I think there's a growing awareness in our culture and our society that we have to really find ways to disseminate outstanding cancer care to everyone. And that starts by deeply engaging our communities. So, one of the expectations now for National Cancer Institute designated comprehensive cancer centers, like the Mayo Clinic, and really all the leading cancer centers in the world, is that we look at what's called our catchment area. What are those peoples in those communities and populations that are actually geographically adjacent to you? That may be over several hundred miles of distance, but we have to deeply understand our communities. We have to meet with them and sit with him and determine what are their priorities for their cancer needs. And we also have to develop really deep data systems about cancer patterns. What are the most predominant cancers in those communities? Are people having access to cancer screening? How do we navigate them to care? So, Mayo Clinic is very deeply engaged now and looking at the characteristics of communities of our catchment areas in Rochester in the Upper Midwest, in the Southwest in Arizona, and in the Southeast in Florida. And I think what the greatest opportunity for me is, if you look at each of these three sites, the communities and populations are very diverse. So, that really gives Mayo Clinic a footprint to begin to understand how to implement and disseminate cancer care to very diverse communities in the South, to predominantly Black, Hispanic and indigenous communities in the southwest and more recent immigrant communities. And even here in the Upper Midwest we have a tremendous Mayo Clinic Health System that reaches out to over 1.5 million people. Many of those individuals are rural, and we also see minority populations. So, if you will, in these three laboratories, we have the ability to determine how to best disseminate care, how to

conduct research that really affects the people in these communities, and that will be a huge part of our strategic effort in the next five years.

**Dr. Halena Gazelka 05:15**

Cheryl, I think many of us have been amazed by the blossoming of virtual care during the COVID-19 pandemic, and I'm wondering if you see that playing a role in the expansion of cancer care?

**Dr. Cheryl Willman 05:29**

I think virtual cancer care is here to stay. So, before I came to Mayo Clinic, I was in the American Southwest during the height of the COVID pandemic where 70% of the hospitalizations, and 50% of the deaths were in American Indian communities. Because of that onslaught of COVID, they closed their communities to travel in and out of the community. So, we could not have patients come to the cancer center for treatment, we couldn't access those communities for screening programs because it was simply too dangerous. So, even in our hospital in the Southwest, but also here at Mayo Clinic, 35 to 40% of our patient visits became virtual. At first that was really stressful to patients, I'm not seeing my doctor, I'm not coming to my hospital. But over time, as we've all gotten used to multiple Zoom meetings per day, those reactions and interactions actually become very personal. And what we found is patients like that. They consider the comfort of their home, they have that intimate private time with their physician, their advanced practice nurse, or clinical trial specialist, or psychologist or nutritionist, and they actually get very directed on-to-one care. So, what we're seeing is, why not do that permanently? When do we have to bring a patient to a major destination medical center for care, like Mayo? When do they need to be here for surgery or very advanced radiation therapy? When could we, however, deliver that care to their home, in the comfort of their home, where they're safer, they don't have to travel, they're not exposed to other patients who may be ill, it's actually perhaps better quality care. So, one of the other great innovations I'm very excited about at Mayo, is the development of the Hospital at Home, Mayo Clinic Care at Home. And now with Dr. Tufia Haddad, we're piloting several experiments to actually deliver cancer care at home to not only take care of patients who have unexplained fever, may have to travel to an ER, wouldn't it be better to treat you in your home? A patient who has undergone a complex surgical procedure or a bone marrow transplant, who is having complications? Why should they have to drive to an ER? Can we treat them at home? Can we have them on 24x7 remote care where at the push of a finger they're in touch with a Mayo physician and a nurse. So, we can definitely do that. And one of the pilot projects that we're doing that I'm most excited about is Dr. Haddad and several of her colleagues have developed a trial to actually deliver breast cancer therapy, infusion chemotherapy, in the home setting for the first time. I think these disseminations, these new platforms, and Mayo cancer care at home will revolutionize how we do cancer care delivery. And if you think about it a little bit, it's also related to my answer to your prior question. We could use these platforms to disseminate high quality care across any geographic barrier to underserved communities who don't have access to great cancer care. So, we're also really beginning to think about where could we pilot or do a demonstration project with a remote community that just simply doesn't have access to great care? And could we begin to deliver this care virtually with all the tools of Mayo cancer care at home and local community providers. And so, I think this is a revolution in health care. It's going to be one of the leading innovations of the Mayo Clinic Cancer Center. We're really building on the vision and strength of Mayo's 2030 Bold. Forward. plan. So, I'm incredibly excited about this.

**Dr. Halena Gazelka** 09:14

Cheryl, I think the concept of delivering cancer care at home is absolutely amazing, and how comfortable for patients, you know, that people are immune compromised, they worry probably about coming into institutions and being around others, and to receive care in the comfort of their home. I just think that's amazing.

**Dr. Cheryl Willman** 09:35

Exactly Halena, and if you think about, you know, these days in most National Cancer Institute centers, most hospitals and community hospitals about 80 to 85% of cancer care is delivered to an outpatient, to an ambulatory setting, to a person coming in and out, and in and out. To be able to do a lot of that at home for anyone would be remarkable, but also people who are in wheelchairs, who are ill, who have disabilities, who find that traveling difficult, or who just simply don't have access to good means of transportation. This is a savings, if you will. I think one of the interesting aspects of this innovation will be the healthcare economics of this innovation. While it may be somewhat expensive to initially set up care for someone in their home, once you do that, the cost savings on travel, hospitalization, and just the personal costs of that patient, I believe will be significantly less. So, I think there will actually be a revolution in healthcare economics and the economics by which we deliver very sophisticated care. So, stay tuned. This is going to be a tremendous thrust. Again, I think it will have a revolutionary impact. And I know patients will love it, based on our experiences of this virtual care transition we all undertook during the COVID pandemic.

**Dr. Halena Gazelka** 10:59

One of the things that particularly struck me as you were speaking was thinking about the disparities that have been so significant in cancer care in the ability to enroll in clinical trials, etc., and how being able to provide care closer to patients or even in their home could remarkably alter that dynamic.

**Dr. Cheryl Willman** 11:20

That's absolutely true. I think one of the challenges our nation faces, again, I faced this when I was a cancer center director in the Southwest with very underserved tribal nations. American Indians have the highest rates of cancer and the poorest cancer survival of any group in the United States including American Blacks and Hispanics. But as we look at minority and underserved populations defined by racial ethnic minorities, if we look at rural populations of any race and class, they all have poorer cancer outcomes for even the most common cancers. So again, these abilities to do care at home, I think could revolutionize that. And it could bring the Mayo brand of care to many, many people who don't have the ability or just the distance to access our actual facilities.

**Dr. Halena Gazelka** 12:14

Cheryl, what is a patient navigator? Mayo Clinic is using patient navigators. What do they do?

**Dr. Cheryl Willman** 12:21

This is a new structure. So, one of the other reorganizations we're undertaking that's been part of a major workstream effort at Mayo over the last couple of years led by a surgeon, a breast surgeon, Dr. Sarah McLaughlin, and a large number of Mayo Clinic physicians and scientists is the creation of a

disease team. So, let's say you have breast cancer, or colorectal cancer, or a brain tumor, or lung cancer, we're developing integrated teams of providers aligned with each cancer. So, for a breast cancer that would include breast cancer surgeons, medical oncologists who give chemotherapy, radiation oncologists who give radiation, but also physical medicine and rehabilitation, nutrition, psychosocial support, and access to clinical trials which you mentioned. How do you integrate all of those people together, those types of providers, both physician and allied health, to impact on the care of a patient, an individual patient? And how do you organize them? One of the really serious problems I've seen in cancer care of the last 30 years, I've been deeply engaged in leadership in this area, is the fragmentation of care. And we have patients running, Where do I find a surgeon? Where do I find my medical oncologist? How can I find out about nutrition or psychosocial support? I have terrible lymphedema, who's going to help me with that? And you watch patients really spending tremendous time and energy locating all these providers. So, Mayo's brand of care is to integrate all those practitioners in a disease team. But the primary integrating person is the patient navigator. So, they're the advanced practice nurse that's actually coordinating all the work of that disease team, and being on the primary interface with the patient, helping them resolve all the complexities of that scheduling among all those different providers, being on the phone 24/7 if they have a serious problem and need help. So, in my experience, a patient navigator in breast cancer for instance, can manage 60 to 75 patients a year, that's a lot, but they become that primary contact person for that patient we're caring for that truly navigates them through all of their providers and all of their psychosocial needs, and also facilitates their introduction to our research programs and our ability to be treated on cancer clinical trials. So, these days a patient navigator is that beautiful organizing principal of complex care for a patient among many specialists. So, we're rebuilding all of our disease teams to not only combine these physician and allied health teams, but their leader becomes the patient navigator. And that's the person who will be that patient's primary interface. We often give them the cell phone of the navigator. Again, a patient can reach this person at any time. And I can't tell you what a stress reducer that is for a patient, again, relating to my time in the Southwest, we used an American Indian term, we called them spirit guides, because that's really what they were. They were dealing with the stress and psychosocial needs of the patient, and helping them navigate a complex health system. So, it's a really beautiful reorganization principle. And again, we're reorganizing all of our disease teams and all the various cancers to combine all these providers, but organizing them around the principle of the patient navigator.

**Dr. Halena Gazelka 16:03**

I just love that concept. I think one of the most common concerns that I hear from patients is, Mayo is just so big, it's so big, and it's, you know, I have to go here, and I have to go there, and they're not necessarily sure who to call when they need something else, and that's a wonderful concept.

**Dr. Cheryl Willman 16:22**

I have a funny story. So, a patient navigator, the lead patient navigator is an advanced practice nurse, right? Because they have to understand the diseases and work with all the physicians and allied health personnel. But they also have teams of allied health personnel who may be laypeople. So, in many centers we have used people who work in churches. I once was flying and stuck on American Airlines in Chicago and had flown back to Albuquerque and my friend who was an American Airlines desk agent said, Dr. Willman, oh you've had a terrible flight, and I'm so frustrated, I have so many angry people,

you know, who've missed their flights, and I'm about to retire from American Airlines. And I looked at her, and her name was Susie, I said, Susie, I have a job for you. Are you interested in becoming a patient navigator? And she looked at me, she retired that day, and she became one of our earliest patient navigators. And her view was, If I can deal with schedule problems for human beings, who really have serious problems other than a missed flight, this is my calling. And so, patient navigators operate at various levels, you know, they don't necessarily have a health background. But there are people who can also work with the lead patient navigator, that advanced practice nurse, and just resolve the scheduling issues, or walk someone, if necessary, from one big place in Mayo three buildings away to the next place they have an appointment, or give them a cup of coffee. The other thing I've found often is that patients feel comforted by the patient navigator and will tell them things about their disease or their fears that they're uncomfortable communicating to the physician. And so, when that patient navigator can come back to the team and say, You know, Mrs. Jones really didn't understand the therapy that you explained, we need to go back and talk to her, or she has this particular need or challenge that we need to see if we can address. So, that communication I find really deepens between the patient and that navigator that they trust or are often more comfortable speaking to, particularly in the beginning of their treatment. So again, I think these are the glue, if you will, of the disease teams and really a central point person. So, I'm really excited. We're organizing all the care teams to include these key people.

**Dr. Halena Gazelka** 18:42

I loved what you said about the communication piece, because that's exactly what I had thought, Wow, what a relationship building opportunity for the navigator as well as the patient. I can imagine that that's very meaningful on both sides.

**Dr. Cheryl Willman** 18:56

Exactly. It becomes a very deep relationship. I've had, I think, you know, I'm a physician, I love my physician colleagues, but I often find when a cancer survivor comes back to visit, the people they really want to see are the nurses that help people, that took care of them, with whom they develop these very deep, trusted bonds, because they were comfortable communicating with them. They're happy to see me, but they really want to see that Susie, or the Jane, or James who helped them get in the car and really always just took care of them. So again, building that allied health team led by an advanced practice patient navigator is a really critical part of caring cancer care delivery.

**Dr. Halena Gazelka** 19:43

Wonderful. We have heard now that in Minnesota there's an expansion planned for the proton beam radiation center. Tell us about what's coming in radiation oncology and what the current innovations are.

**Dr. Cheryl Willman** 20:00

Well, this is another area where I really believe Mayo Clinic will lead the world in cancer care delivery. So, currently I believe most people know across the United States that Mayo Clinic has become the largest provider. We treat the largest number of patients in the United States with proton beam therapy. And I've had the wonderful opportunity to work with Dr. Nadia Laack, Dr. Laura Vallow, who are leading radiation oncology programs in Rochester and Florida, and also the team in Mayo Arizona.

And clearly, we do not have the capacity to treat all of the patients who seek proton beam. And so, there will be a significant expansion, starting in Mayo Rochester of proton beam capacity. So, this is a very advanced, what we call heavy particle, form of radiation therapy. And Mayo Clinic physicians and scientists have developed new improvements to proton beam therapy that really allow us to fine tune that beam to deliver the radiation therapy to the tumor, protecting vital organs and tissues around it. So, because of our advancements in proton beam therapy, there is a huge drive of patients, and referral of patients to our centers. So, this expansion in proton beam is really, really important. But the other expansion I'm really excited about is Mayo will be the first cancer center in North and South America to deliver a new form of radiation therapy similar to these heavy particle therapies called carbon ion therapy, and then eventually, boron neutron capture therapy. Complex words I know, but basically heavy ions like proton. And these are the new advanced radiation therapies of the future. So, starting first in Florida at our Mayo Florida site, we'll be introducing carbon ion radiation therapy we hope around 2024 to 2025, as the construction of the facilities is completed. So, carbon ion currently is only available in Switzerland or Japan. And we have a major collaboration with Hitachi to bring this technology to Mayo Florida, and then Mayo Rochester relatively simultaneously. Now one of the most exciting innovative thrusts I think we have in this, is we really need to prove how carbon ion, proton, and boron neutron capture actually work. We know we can fine tune them to deliver this intensive radiation therapy to a tumor. But how does it really work? And one of the really interesting theories is these heavy particle therapies work by blasting that tumor in a focused way to create what we call neoantigens. That's a big word to mean we're changing altered proteins and disrupting the DNA of the cancer, that it puts out new little proteins and molecules on its surface. If you think of it, it's kind of like the COVID virus entering your body and stimulating immune responses. So, what we're trying to do with these heavy particle therapies, is stimulate an immune response by creating these neoantigens on the tumor surface. So, one of the research pipelines we'll be developing is sequencing a person's tumor comprehensively to understand the mutations they have that are causing their cancer, giving the heavy particle therapy, sequencing them a few weeks, again after the tumor, to see if these neoantigens have been created. And then just like Moderna and Pfizer have developed RNA vaccines to COVID, we want to develop individual RNA vaccines to each person's cancer. So, this pipeline, if you will, of heavy particle therapy, genomic sequencing through individualized medicine, as we've been doing at Mayo to develop an individual cancer vaccine is a huge, exciting, and innovative thrust where I really think Mayo will lead the world. So, this is a major investment of the center and new infrastructure, new faculty and programs, but incredibly, incredibly exciting. I think most people can understand that now with what we've gone through with COVID and the introduction and success of RNA vaccines, why shouldn't there be the ability to develop each human being's individualized RNA vaccine, tailored to their cancer. So, that's the future we hope for, and we hope to really bring to the world and all our sites.

**Dr. Halena Gazelka** 24:35

That really is inspiring. I remember back when there was discussion about building the proton beam center here. There weren't too many of them in the United States at the time, I think, and the tumors that were selected for treatment at that time were relatively few I believe. And now, we can't keep up with the demand, and it's being used more and more, and there are even new techniques being developed. It's really amazing.

**Dr. Cheryl Willman** 25:05

It is amazing. I'm incredibly excited, as is Dr. Farrugia, Mayo CEO, about this thrust. And I'm really thrilled with his leadership. And he really set the groundwork for this foundation and this pathway. And I'm just thrilled to be working with him to bring the philanthropic resources, the collaborations with industry, and many companies around the world, the collaboration with companies and new technologies to do the RNA vaccines that will really make this possible at Mayo. So indeed, it's a very exciting time.

**Dr. Halena Gazelka 25:37**

Cheryl, you mentioned something that I'm hoping you'd touch on for our listeners just a little bit more. You talked a little bit about sequencing, and I'm wondering if you'd explain a bit the role of genomics and cancer genomics in the care of individuals with cancer?

**Dr. Cheryl Willman 25:53**

Well again, I think this is sort of easy for people to understand, or understand better, given what we've all been through with COVID. So, we now know that cancer arises because our cells or tissues in our body, acquire mutations or little mistakes, if you will, in the coding of our DNA and ourselves. These mutations actually come about just through aging and the process of living, they come about from probably environmental exposures that we're all exposed to. But as we acquire these mutations in certain cells and certain tissues of our body, cancers begin to grow. And what we're understanding now is we need to sequence the DNA of every person's cancer who has presented with cancer, so we understand exactly what the mutations are that they've acquired in their cancer. And we develop the targeted personalized treatment for them that is tailored to those mutations. So, I have an example of work I've done in leukemia. It was thought in young children that we knew all the mutations that cause leukemia, but about 10 years ago, I began to focus on a group of what were called children and young adults with high-risk leukemia. We didn't really understand the mutations that caused their disease, and these children had a very high rate of death, maybe 20% survival at four years. And we did comprehensive genomic sequencing of 1000 of these children and adults where there were biospecimens. And what we found was a completely different range of cancer-causing mutations in Hispanic and American Indian children with leukemia. And that led us to find the mutation, there was a drug that the pharmaceutical industry made that was sitting on the shelf targeting that mutation. And we immediately moved to clinical trials to test that drug which has had tremendous efficacy in these diseases. So, what we think now is every human being depending on their race and ethnic background, that determines some of the mutation patterns you get, and where you live, your geography, what you've been exposed to, what your lives and behaviors have been, have a different constellation of mutations that cause their cancer. So, a Black woman with breast cancer living in Washington, D.C. might have a different breast cancer promoting mutation than a white woman living with cancer in northern Minnesota, than a Hispanic or American Indian woman living in the Southeast. So again, breast cancer is not just breast cancer, breast cancer is almost coming to the point of truly what Dr. Farrugia calls individualized medicine. We need to know the mutations that are causing your cancer, because we do these days have many drugs that are targeted to specific mutations, or it gives us clues to the pathways and ways to treat. So, one of the third big innovations I'll talk about that the Cancer Center is really launching is in collaboration with the Center for Individualized Medicine, in collaboration with the Department of Lab Medicine and Pathology, we are going to build and begin a massive program of sequencing comprehensively under clinical laboratory conditions, every newly diagnosed



patient at Mayo with cancer, and build up these data systems, and be able to really develop individualized care for our patients. So again, this is a third initiative that really builds on many of our strengths that I'm very excited that we'll implement all across the Cancer Center. Many colleagues in Lab Medicine and Pathology and the Department of Oncology have been engaged in this. It's just time to scale up this project in a massive way and bring it to bear to all of our patients, so I'm very excited for that.

**Dr. Halena Gazelka** 29:48

That is very exciting. It sounds futuristic, and yet here we are. It's wonderful. You know Cheryl, here at Mayo we talk so much about the three shields of Mayo Clinic, clinical care, research, and education, and they're all vitally important. I think we focus a lot on clinical care because it's a lot of what our patients are interested in. I'm wondering if you could tell us a little bit about research endeavors and clinical trials that individuals can enroll in, and then what's going on in the world of education for future providers and faculty in terms of cancer care.

**Dr. Cheryl Willman** 30:28

Let me touch on both of those. So, cancer clinical trials are essential to advancing our knowledge in cancer care. And one of the big tragedies in the United States, over 90% of children who have cancer 15 and under, over 90%, are treated in a cancer clinical trial. So, that means they're treated under a very detailed protocol to capture all their data and information. And we're testing new drugs. So, we have improved outcome in children with cancer so rapidly over the last 20 years because we treat everybody in the context of a clinical trial, or a very regimented protocol and study. The tragedy today is less than 5% of adults with cancer in America are treated in clinical trials.

**Dr. Halena Gazelka** 31:12

Oh my goodness, that seems so low.

**Dr. Cheryl Willman** 31:16

Yeah, it's terrible.

**Dr. Halena Gazelka** 31:17

It is terrible.

**Dr. Cheryl Willman** 31:18

And then when you start looking at African American, American Blacks, Hispanics, American Indians, Asians, their rate of participation in cancer clinical trials is even lower. So, an NCI comprehensive cancer center, like Mayo is expected to have a massive cancer clinical trials program. And so, we have a menu of over 300 cancer clinical trials every year that are testing new drugs and bringing treatments to patients. And I often find that a patient thinks, Well, why should I be a guinea pig to test a new drug, but in reality, virtually every cancer patient I meet is really altruistic. They want to participate in a trial if you present one to them, because they're advancing the science perhaps not only for their well-being, but future patients'. So, there's a real altruism in cancer medicine, we just need to bring these trials to patients and have them available to participate. The other thing I always tell patients about a clinical trial is you're getting the best care, because there's a very regimented protocol the physician must

follow. And if they vary from that protocol, there has to be a darn good reason that's really well documented. So, I also think it not only brings patients new drugs and treatments, access to those, but it actually standardizes a very high quality of care. So again, the Mayo Clinic every year does a very large number of cancer clinical trials, but we're actually going to increase that number even greater and coordinate the clinical trials we have going on between medicine and surgery, radiation oncology, GYN oncology, and pediatrics, and really accelerate the clinical trials. So, the other beautiful thing you said about Mayo is it has a distinguished history. I'm proud to be a graduate of Mayo Medical School. Back in 1981, when I came the first time to interview, I've been back a few times as a visiting professor, but I still get disoriented from the institution in Rochester because it's just so big. And I'm like, Wow, this building wasn't here when I was here before. But the real beautiful history of Mayo in education, training and mentoring is just a beautiful one. And so, what we are going to do is we're trying to really build education and training programs of all levels. And an NCI Cancer Center is actually expected to go way back and begin to entice middle school and high school kids in in really becoming a cancer physician, becoming a cancer scientist, becoming an allied health professional, working with communities. So, these high school experiences, we need to begin to increase at all our Mayo sites, is something very exciting to me. And then mentoring young kids who are going through college and obviously medical school, and also really supporting young trainees in a science career or an allied health career. So again, we'll be working to deepen Mayo's already deep programs of training and education in the cancer field. But I think the most important area with all the advances we've talked about today, you can see they're dependent on genome sequencing. They're dependent on radiation physics. They're dependent on the computational sciences and mathematics and engineering, artificial intelligence and predictive modeling. And so, what is really exciting I think in cancer medicine training today, is it's what we call multi-disciplinary or transdisciplinary. So, we don't just train someone in cancer cell biology or medical oncology, you cross train them. They get training in physics or engineering or mathematics, or other sciences that are beginning to impinge upon these pathways that are so important. So, this type of multidisciplinary training is really training the future physician and scientists of the world to drive cancer care. So again, very exciting times where our training programs begin to build off the innovations we're building in the Cancer Center in Mayo Clinic itself.

**Dr. Halena Gazelka** 35:31

Cheryl, this has been absolutely inspiring today. It sounds like an incredible undertaking the work that you are leading, and I'm wondering how does philanthropy affect the work in the Mayo Clinic Cancer Center?

**Dr. Cheryl Willman** 35:46

Well, philanthropy is absolutely critical to our work. We could not do any of the innovative things I've described in genomic sequencing, in the development of new radiation therapies, in our community outreach engagement, in recruiting the very best faculty in Mayo, in supporting our education and training programs without our major donors and our small donors. So, philanthropic donations to any cancer center are often a third to more of its funding base and are just critically, critically important. And I find because of the incredible care that Mayo delivers at all of its sites across the world, that we have a large cadre of really committed donors that increase every day. And so, I actually really enjoy interacting with our donors and telling our stories because their gifts are absolutely critical to all the things we want to achieve and do. And I find, again, grateful patients are often so grateful, that they

want to be able to give to foster the kind of innovations we're speaking of. So, philanthropy plays a very, very critical role in our future. Thank you for asking that question.

**Dr. Halena Gazelka** 37:02

Is there anything else that you'd like to share with our listeners today?

**Dr. Cheryl Willman** 37:05

I don't think so. I'm just really thrilled to have this opportunity to speak to everyone. I'm absolutely thrilled to be here. I wake up every day and discover new things and new opportunities to expand the cancer program. And I'm really excited for our future. And I'm confident with everyone's hard work we will be successful.

**Dr. Halena Gazelka** 37:25

Thank you so much.

**Dr. Cheryl Willman** 37:26

Thank you.

**Dr. Halena Gazelka** 37:28

Our thanks to Dr. Cheryl Willman, Executive Director of Mayo Clinic Cancer Programs for being with us today to talk about innovations in cancer care and in caring for patients with cancer. I hope that you learned something. I know that I did. We wish each of you a wonderful day.

**Narrator** 37:44

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