Evan Noch

00:00:00.240 - 00:03:19.640

Welcome to the very first episode of Research & Rounds. I'm Dr. Evan Noch, and in episode one I sit down with doctors Betsy Nabel and Rochelle Walensky to ask a foundational question: why does the Physician-Scientist career still matter?

Betsy and Rochelle have taken remarkably different paths through medicine, science, leadership, and public service.

We talk about the experiences and mentors that shape those paths, the uncertainty that comes with building a career across disciplines, and why some of the most important opportunities are the ones you could never have planned for.

We also explore what it means to be a physician-scientist today, how clinical questions can drive discovery, why mentorship and collaboration matter, and whether our traditional model of training and funding needs to evolve for the next generation.

Because there may not be a single blueprint for this career.

What matters is staying curious, asking consequential questions, and being willing to follow where those questions lead.

Here's our conversation.

[Musical intro]

Welcome to the Research & Rounds podcast.

This is our episode entitled "why the Physician-Scientist Career Pathway Still Matters," and today I'm joined with two truly luminary guests, not just in the traditional sense of the word, but also because both of these guests really radiate true enthusiasm and optimism for biomedical research and for the physician-scientist ecosystem.

Our first guest is Dr. Betsy Nabel, a cardiologist, physician-scientist, and long-term leader in biomedical research and academic medicine, currently serving as an advisor to ModeX Therapeutics and as Chair of the Board of Directors of the Lasker Foundation.

Also freshly off the Lasker luncheon today!

She previously served as President of Brigham Health and Brigham and Women's Hospital, as well as a Director of the National Heart, Lung, and Blood Institute at NIH.

She's also a member of the National Academy of Medicine.

Dr. Nabel began her career as an interventional cardiologist. She's been a cardiovascular researcher, and her scientific work has focused on the molecular genetics of cardiovascular disease and has resulted in a number of publication patents, and now she's also been advising two startup companies.

Her career has also taken her into leadership, into advocacy, federal science, and she can really speak to why this pathway still matters.

Our second guest is Dr. Rochelle Walensky, an infectious disease physician, physician-scientist, and public health leader.

She served as the 19th director of the Centers for Disease Control and Prevention and previously served as chief of the Division of Infectious Diseases at Massachusetts General Hospital.

She's currently a professor of medicine at Harvard Medical School and also has faculty roles at the Harvard T.H. Chan School of Public Health. Also is a member of the National Academy of Medicines.

Dr. Walensky is an expert on HIV and AIDS, particularly the use of decision science, mathematical modeling, and health economics to evaluate approaches to HIV screening, prevention, and treatment.

Her work has contributed to real changes in HIV testing, treatment, and public policy, and she's had significant experience leading governmental agencies through her work at CDC.

So, welcome, Rochelle.

Rochelle Walensky

00:03:20.120 - 00:03:21.560

Thank you. Thanks for having us.

Evan Noch

00:03:22.360 - 00:04:15.000

So, I want to begin the podcast with talking about a really important question that we're going to address today, which is actually the first word of this podcast title, which is "why?"

It's also the first word that many trainees need to ask themselves when they're beginning the application process to even become a physician-scientist, which is, you know, why are you going about this journey?

Why do you want to become a physician-scientist?

Often when I talk to undergrads, I ask them when they're applying for medical school or for dual-degree programs, why must you have both degrees? And why must you marry the clinical disciplines with the research? And why is that the only path by which you can really flourish in your career?

So, I want both of you to take us back to when you began this journey in your physician-scientist career and try to talk about why, why you chose this path. Was it a clear decision in a particular moment, or was it something that developed over time?

So, Betsy, let's start with you.

Betsy Nabel

00:04:15.480 - 00:07:42.570

Sure.

Well, thank you, Evan. It's wonderful to be here with you.

And with you as well, Rochelle.

So, I was not a pre-med student in college.

I did post-baccalaureate course at Columbia, which had the first and only post-baccalaureate course at the time. I went to medical school at Cornell.

And so by the time I began my clinical training, I was more advanced in years, particularly for women of my generation. So, I did not have the luxury or the liberty of doing an MD-PhD program.

In retrospect, I probably would have if I had started in science earlier in my career.

But nonetheless, for those who are in medical school's role and have not done a PhD, one can clearly still have a very robust physician-scientist career.

And if you're fortunate enough to be in an MD-PhD, that's terrific as well.

So, why are we interested in being physician-scientists?

Well, we're physicians because we care about patients. We want to make the lives of our patients better.

But why do research?

It's because we're intellectually curious. We want to answer.

We want to answer questions that begin with why?

Why does this happen?

What leads to this?

And we know that we're only going to improve the lives of our patients if we conduct research, whether it's in a basic science area, clinical medicine area, or public health arena.

So, I did my medical residency at an academically rigorous program. It was led by Dr. Eugene Braunwald. He unfortunately recently passed away.

But one of the, if not the most distinguished, cardiologists of his generation, and Dr. Braunwald, who also was an MD, not an MD-PhD, really taught us to be intellectually curious and he encouraged us to be in all aspects of clinical medicine.

I began my career as an interventional cardiologist and my first academic position was at the University of Michigan.

This was in the late 1980s, and at the time we were just starting to do thrombolytics for myocardial infarction and, more importantly, coronary angioplasty for coronary artery lesions.

At that time, about 75% of our patients were coming back with a clinical entity we called at that time restenosis.

It was a regrowth of smooth muscle cells in the blood vessel.

We didn't understand why that occurred.

I was curious and wanted to know why.

I went to my department chair, who was Dr. Bill Kelly at the time, and I said, I want to establish an NIH-funded lab to pursue this question of what are the molecular and cellular mechanisms behind clinical coronary restenosis.

Bill was a wonderfully visionary department chair. And he said, fine, no problem.

And he gave me $50,000 a year for three years to begin in a small bit of lab space to begin my investigative career.

And with that, I was able to get an R01 within a year and a half, and that led to other investigations.

Now, having said that, I was extraordinarily lucky.

I was fortunate to train with two very gifted academic leaders who had the vision and the foresight to encourage young people to go into investigative careers.

And I was also lucky to grow up in medicine at a time when the NIH was very robust and encouraged the careers of scientists.

So, the answer to why is because medicine will always need individuals who are intellectually curious and who want to ask questions and seek answers, point blank.

Evan Noch

00:08:08.790 - 00:08:17.910

So, in your case, it really was the clinical observation that informed that decision.

Do you think that was something kind of sudden, or do you think that interest was brewing over time?

Betsy Nabel

00:08:18.150 - 00:08:51.600

It was brewing over time because vascular biology was an emerging field.

Mike Gimbrone, who was a pathologist at the Brigham, was just studying endothelial cells, uncultured endothelial cells for the first time.

Vascular pathology was very strong at the University of Washington at the time, but there were very few, if any, interventional cardiologists who were making the link with fundamental

mechanisms and clinical medicine. And that was a distinct role and niche that I found that I could fulfill.

Evan Noch

00:08:52.480 - 00:08:53.760

Right person, right time.

Betsy Nabel

00:08:54.240 - 00:08:54.720

Yes.

Evan Noch

00:08:55.680 - 00:09:00.480

So, Rochelle, what about you? What was the process by which you became a physician-scientist?

Rochelle Walensky

00:09:02.320 - 00:13:10.650

Again, delighted to be here with you.

And with you, Betsy.

You're going to hear a lot of parallels in my story, though different in space and disease, time and disease.

I actually always knew I wanted to be the physician part. Even dating from high school. In fact, I was in a BA-MD program.

I went to Washington University in St. Louis to be in their BA combined MD program, applied as an 18-year-old.

I loved medicine because of this intersection between the EQ and the IQ, that I could work with really bright, smart people, and I could do a lot of the empathy and emotional work that I thought medicine was able to deliver.

I was a medical intern in inner-city Baltimore in 1995 and I happened to be an intern.

Well, I'll dial back to 1991.

I remember walking into my first-year medical student class and having everybody pour over the newspaper that Magic Johnson had just announced that he had HIV.

And I thought, this is probably going to be part of my training.

By 1995, when I was an intern in inner-city Baltimore, more than half of our admissions a night were dying of AIDS.

And that was what we did all night, all the time.

And that was the year of the third drug of the cocktail.

That was the year of the viral load.

It was the year that we spent.

We took the purple tops.

You couldn't take them to the hospital lab, but you could take them to the research lab and get viral loads on your patients, as we started to see that that was a predictor of outcomes, and that we were writing the first prescriptions for triple-drug antiretroviral therapy when I was an intern.

And the first studies were coming out that demonstrated that this could probably be the thing that would save lives, since AZT alone didn't do it, AZT/3TC didn't do it, that this very well may be the thing.

I was really excited by this intersection between what we were doing in medicine, societal health, stigma for the patients who we were caring for, many of whom were gay men and injection drug users.

And then there was this issue with the price tag, which, these drugs were $15,000 a year, and I was staying up all night to care for folks and to write these scripts.

And there were policymakers that they were saying that perhaps these patients, using their words, were not worth that price.

And that just made me angry.

And so I was somewhat inspired by the science because of the unfair policies that I was seeing operate in real time.

So I decided to do a fellowship in infectious disease.

But I didn't love the bench.

I had done some bench work in college, and I sort of recognized I was really more quantitatively savvy than I was at the bench.

And so I went in pursuit of scientist role that was really more in epidemiology, cost, cost-effectiveness, mathematical modeling.

And I remember going to a few of my mentors at the time saying, well, that you could do that science, but I'm not sure anybody's going to care, because this was just a very different kind of physician-scientist path than many people had appreciated.

But this is what I was good at; I loved the math component of it, and I sought mentors who were doing economic analysis in HIV.

This was really before people were caring about price tags in medicine, and very few people were writing about cost and cost-effectiveness analysis.

But I happened to be at a place at the Brigham and Mass General and at the Harvard School of Public Health that was a hub in decision science and evaluation, and cost and cost-effectiveness, and started doing more and more of that work, both domestically here in the United States and then around the world.

And it turned out that these costs, the cost of the drugs, cost of the tests, cost of the interventions, cost of screening and diagnostics were really a key component of this disease, both here in the United States and around the world.

And even to this day, the antiretroviral drugs that keep people alive in the United States are now $50,000 a year.

And those same drugs that we used in PEPFAR are about $65 a year in Africa.

So, have done a lot of work and have been really motivated by access and getting people access.

Evan Noch

00:13:11.450 - 00:13:57.930

And we're going to talk about the roles of physician-scientists and the diversity of career paths a little later in the podcast.

So we're definitely going to talk about how this work in public policy and decision science can really play into a very attractive career for, you know, budding physician-scientists.

But the theme that I'm seeing emerge from both of you is that the clinical questions really informed your scientific pursuits.

And obviously, there's not really a right and wrong way to go about falling into a physician-scientist career, but it is such a common way that happens with trainees to be inspired by these clinical encounters or clinical observations.

So, Betsy, why do you think that has been such a tried-and-true strategy for physician-scientists to find their footing back in science?

Betsy Nabel

00:13:58.170 - 00:15:45.840

Oh, it's really interesting, Evan. I think you're absolutely right.

Physician-scientists have a unique perspective point of view because the physician part of them can make a clinical observation and ask the question, why?

And then the scientist part of them can say, well, how could I study that why?

And that's something that a PhD scientist cannot do.

The PhD scientist might say, well, this basic discovery is interesting, but they can't make the clinical connection to patients.

And that's a fundamental difference that I think is extraordinarily important.

I see it played out now in the biopharma world.

I see because I spend much of my time now in biotech, pharma, and medical device companies, I can observe how individuals who have MD-PhDs are able traverse the gap between discovery science, clinical translation, and clinical medicine very readily, whereas PhD scientists or masters of scientists cannot.

Furthermore, because the MD-PhDs can readily make those clinical insights and ask those fundamental questions, their contributions are uniquely valued, I think, by leadership in biopharma.

I see the folks who were trained in business and have come up the commercial pathways. They certainly can't make the clinical observations or ask the fundamental questions, but when they see people who can, their eyes light up because those are the individuals they want to really surround themselves with.

Evan Noch

00:15:46.800 - 00:15:59.040

And on the flip side, I want—I wonder if you could talk a little bit about how the scientific discoveries you made in vascular smooth muscle biology actually informed the clinical decisions that you were thinking about during your early career.

Betsy Nabel

00:16:00.240 - 00:17:57.130

Well, it's interesting.

My husband is an MD-PhD scientist.

We met during our clinical training at the Brigham.

We moved to the University of Michigan together and he decided to do primarily fundamental research, a Hughes Investigator at Michigan.

And we were at a interventional cardiology party one night and the head of my cath lab said to my husband and I, you know, you two ought to collaborate sometime.

And Bill Kelly was very interested in exploring the field of gene therapy.

This was back in the late 1980s, so gene therapy was very nascent at the time, and a lot of it was really focused on how do you build viral vectors, and can you do electroporation or use what other transduction methods can you develop to get genes into cells?

Long story short, along with Jeff Leiden, Gary, and Jeff and I developed a number of techniques for introducing recombinant genes into blood vessels and the heart.

And we formed a startup company in about 1990 or so, and it was essentially a virtual company that the, built around the intellectual property that we developed that was owned by the University of Michigan.

But the tech transfer office at the university was quite nascent at the time, and so we just decided to go ahead and form our own company and hire our own CEO.

And we further developed the technology with funding we had at the university.

And then we eventually, through our CEO, sold the company and handed the done deal to the university tech transfer office.

That would never happen today; never be allowed to happen.

But that's what, you know, when you want to do something and get it across the finish line, you figure out what you got to do to be successful.

And that's what we did.

Evan Noch

00:17:57.370 - 00:18:24.220

So, Rochelle, you know, much of your research has used modeling in HIV clinical data, health economics to answer questions about testing, treatment, prevention.

And later, you made this transition to making public health decisions at CDC.

And I'm wondering how your dual training in research and medicine decision science, as you had earlier in your career, really prepared you to be the leader in national policy that you are.

Rochelle Walensky

00:18:25.020 - 00:20:09.750

Yeah, that's actually a great question.

So I anticipated that my work in infectious disease and sort of my credentials in infectious disease would have been the ones that would have been most helpful to me as I went to lead the CDC.

Or maybe that's the one that's most obvious as to, like, the helpful credentials that I had.

I actually think the ones—

I had subject matter expertise in all sorts of infectious diseases and non-infectious diseases while I was at CDC.

And if you think about the time that I was there, so I was sworn in on January 20th of 2021, a few hours after President Biden. We had 4,000 people dying each day of COVID at that time, and there was a lot of uncertainty ahead.

My training in decision science, chapter two of that textbook is entitled Managing Uncertainty.

So, it is all about risk and understanding both risk and uncertainty. And not just like, what will I—what are my priors for what will happen next, but then what will happen after that, and what will happen after that?

And how do I have to correct my priors as I get more information and as I get that more information, do I have to amend those decisions along the way?

So being able in my mind to sort of understand the risk, build the decision trees in my mind, manage that uncertainty, and then know when I needed to pivot and to change a policy, I think was, like, really, really helpful in my training.

And so I do think it was not just the infectious disease part that that helped me, but also that really that piece of being able to build the decision tree in my head.

Evan Noch

00:20:10.310 - 00:20:15.430

Was there a particular time in your journey where you feel like you really mastered handling uncertainty?

Rochelle Walensky

00:20:16.310 - 00:21:44.950

Oh, no, don't be silly.

I mean, I, Bessie, I think you'll probably agree with this.

In many of the positions that you've been in and the extraordinary career that you've had, that, you know, by the time really hard decisions got to me at the CDC, there were only bad results.

Like, somebody was going to be hurt by whatever decision was made. If it was an easy decision, somebody else made it.

Like, that's just the role of a leader at that level.

And so what that meant was really trying to understand what you were trying to optimize for.

Were you trying to optimize for a specific outcome in a subpopulation?

Were you trying to optimize for an outcome in the entire population, who was it most important to, and what outcome were you optimizing?

And then a lot of the work there was really to try and understand the downstream effects. That was really something I learned is to ask the question: what can't I see?

Because you can really only update your probabilities if you know all of the outcomes that might happen, and what can I see both in health but in all of the policy? How is it—how is this decision going to impact the Coast Guard? How is this decision going to result in the Bureau of Prisons and like all the things that you might be able to see in health and model very clearly, and then all the things that you might not be able to see at a much larger policy level?

So that is really where it came in very, very handy.

Evan Noch

00:21:45.270 - 00:22:09.310

And Betsy, you know, I'm wondering, when you were the leader of the Brigham, you had mentioned before that you were not just a physician for your patients, but for a whole hospital of patients.

So I'm wondering, in that role, how did you begin to be able to be that physician for the entire health system and use some of your skills to take care of such a wide population?

Betsy Nabel

00:22:09.870 - 00:24:08.910

That's a really important question, Evan.

I think as leaders, it's important for us to think about the vision we want to create, and knowing that if we can motivate and inspire people we work with to carry out that vision, it will improve the lives of our patients.

And that's the approach that I try to take.

You know, Michelle—Rochelle—spoke earlier about the EQ and the caring part of clinical medicine.

I think that was the piece that I wanted to bring to my leadership role at the Brigham, along with the IQ piece of supporting research advances.

The EQ part of the caring for patients was particularly important as I spent time with our nurses, our technicians, our housekeeping staff, our food services staff, all of the various employees of the hospital.

And I tried to treat each of them with extraordinary respect because I knew that each of them, no matter what their role, they were critical in order for us to implement our plan for caring for patients.

And I used to say that unless we take good care of one another, we can't take great care of our patients.

And so that was sort of the general approach that I took.

At the same time, as a firm believer in academic values and academic health systems, it was important to me to hire academic leaders who would establish a vision and a mission for their department, who would hire outstanding faculty and advance our clinical care program, but equally important, our research mission as well.

So those were some of the sort of leadership approaches that I tried to use when I was at the Brigham.

Evan Noch

00:24:09.870 - 00:24:24.890

I agree.

I think that EQ is certainly a critical role for a leader so that you can actually relate to one another.

Do you think that's a skill that trainees can learn if they don't feel they have it? Do you think that's something that's more inborn and hard to train someone to be better at?

Betsy Nabel

00:24:26.650 - 00:25:30.070

I think you start with a baseline and you can improve upon it.

Clearly we have colleagues who are very strong IQ, maybe not so strong EQ, and we have colleagues who are very strong EQ, and we all have our strengths and weaknesses, but I'm a firm believer that at all stages of our career, having a coach and having a mentor and sorting out your strengths and weaknesses at each point in your career is really, really important.

It will give you insight into yourself, but also help you think through what are my short-, mid-, long-term career goals and how am I going to get there?

What are sort of the—what are going to be my opportunities, but what are going to be the deficits or things that I'm going to have to work through in order to get there?

I was a very strong proponent for having coaching and mentoring programs for all of our employees, but particularly for our faculty when I was at the Brigham.

Evan Noch

00:25:30.870 - 00:25:37.670

That's so important.

And sometimes you need to really gain the skills that are going to get you to the next stage, not necessarily the skills at the stage you're in right now.

Betsy Nabel

00:25:38.540 - 00:25:40.060

That's correct, absolutely.

Evan Noch

00:25:41.180 - 00:26:28.070

So, that should be fairly obvious, but both of your careers have taken on a whole variety of roles, positions, skill sets, and you've tackled tremendous challenges within the healthcare system.

We know now that the true definition of a physician-scientist is much broader than it used to be.

So is it your opinion that this definition really needs to broaden to encompass all the areas that we've already talked about, whether it's decision science, whether it's public policy, whether it's being a physician leader or physician entrepreneur, like you mentioned, Betsy, starting your company relatively early in your career, and can someone's career move between these environments without losing that identity?

So, Rochelle, let's start with you.

Rochelle Walensky

00:26:28.870 - 00:28:21.020

Some of the most fun that I've had in the both my scientific work and in my leadership work has been hearing different perspectives and learning from different points of view.

As I was becoming a more established mentor in my research world, I took on mentees that were pulmonologists or allergists who wanted to do decision modeling in their own field.

And. And it was just so much fun for me.

I was not the subject matter expert in tobacco cessation, but, like, I could help a modeler, somebody who wants to become a modeler, and that person could bring in the subject matter expertise, and we just had so much fun doing new science together.

And that actually was very true while I was at CDC.

Like, the most enlightening conversations for me were when there were other departments that were in the room, whether it be Homeland Security or Education or commerce, to be able to say, like, what's your perspective on—

Health is one really important seat at this table, what's your perspective on these, you know, having these other perspectives and other seats at the table?

And so I think, yes, if you had said to an MD-PhD candidate 20 years ago that I want to do mathematical modeling work and economics and HIV, I don't know that any MD-PhD program would have said that fits perfectly with our point of view of what a physician-scientist is.

And I'm really proud to be able to say I'm a physician-scientist in sort of cost-effectiveness analysis and social sciences and economics, because that's possible.

And can we, or should we be doing that in music and English and history and religion and economics?

And what does that mean when we bring more of that to the table?

And I think that that's really part of the fun and the brilliance of being a physician-scientist.

Evan Noch

00:28:21.580 - 00:28:30.440

And there's few people, I think, who would have been in the clinic to see the cost of the drugs that you were giving to your patients who could have actually researched how to make that better.

Rochelle Walensky

00:28:31.080 - 00:29:01.750

Right, right.

And in fact, when I sat for eight years on the HIV treatment guidelines at the NIH, and part of what got me to the guidelines is I just did a search on the treatment guidelines before I got there for the word "cost," and it showed up in the word "corticosteroids," but nowhere else.

So I said, shouldn't we be caring about how much these drugs are for our patients and whether they have access?

And that brought, you know, a whole new chapter to the guidelines.

Evan Noch

00:29:01.750 - 00:29:09.710

That made do the spelling in my head; I was thinking, cost, corticosteroids. I use these all the time for my patients. Now I'm only going to see the cost of them.

Rochelle Walensky

00:29:09.950 - 00:29:10.430

Sorry!

Evan Noch

00:29:12.510 - 00:29:35.780

So, Betsy, you've held roles in academia and government as the head of a major health system and now also advising companies and previously starting your own company, so you've worn so many different hats as a physician-scientist.

So, where do you think the new definitions of this role will go? What do you think is the new position, new role that trainees might take in the years to come?

Betsy Nabel

00:29:36.020 - 00:34:33.138

I would say the definition of a physician-scientist is a physician who is intellectually curious and wants to ask questions.

And then if you take that sort of fundamental statement, you can apply it wherever you would like.

And that's what I would really encourage individuals who are becoming physician-scientists or who are early physician-scientists to think about. Dream.

What do you want to do?

What questions do you want to ask?

What approaches do you want to take?

And then think about how to get there.

I think it's a much broader and much more open perspective than perhaps we've taken in the past.

I think, ironically, changes in our federal government biomedical research infrastructure has forced us to reexamine this question and open up the aperture quite widely.

But I think now that there are important roles for physician-scientists in just about every phase of our society.

Certainly you can start more narrowly at universities and academic health systems, and then you can widen it to government agencies and then widen it even further to biopharma, I'll come back to that in just a moment, and then widen it even further to the field of finance and economics.

So I think that there are a variety of roles that one can play, and I do think that equally important is how you want to balance your personal life with your work as well.

And I know there's a lot of sensitivity around geographic location and work-life balance and family, which I think are incredibly important. And having this wider definition, I think, allows you to do that.

I just wanted to highlight what I think is a critically important role for physician-scientists in biopharma with the loss of NIH funding for early physician-scientists, and I'll say that whether you're an MD alone or an MD-PhD, or whatever, you're MPH, whatever your degree is, it has caused us to re-examine how we're going to launch careers.

And I would encourage individuals to look at the biopharma world because as I view it now, the quality of discovery research, clinical translational research and clinical research done in biopharma is at par with what I saw in academic institutions.

And the reason being is that so many young trainees have now moved into that sphere and brought their intelligence and their skills and their capabilities to that arena.

And what it's done is to really elevate the quality of the work that's done in biopharma.

So what one might miss is you don't have the independence to just daydream all day and think, what if, and think about what question would I like to ask and hope that someone supports you asking that question, you know, the research is more focused, but on the other hand, you play an important role in defining the research questions and the research approaches and the focus by which the work proceeds.

So I encourage a lot of people to think very broadly about where they want to go.

Now I think what's difficult for so many in MD-PhD programs now as they finish their PhD training or their clinical training, many of their role models and mentors at academic health systems have spent their entire life in academic medicine.

And so they're not always cognizant of the opportunities that avail young scientists.

And for that reason, I really encourage individuals: seek the advice of your mentors, but don't be limited by that.

Think about what you would like to do, and if you have connections at a company or if you've got colleagues who have followed a line of pursuit that you might be interested in, or cold call. You see somebody in a startup company or biotech company is doing something you're interested in, approach them, ask them: how did you get to where you are? What did you need to do to get there?

And be bold about it because what I find is that individuals who are early in their career in biopharma want to bring along the next generation and really want to elevate them.

So I just encourage young physician-scientists to think broadly and then to use multiple approaches to think about how they pursue their pathway.

Evan Noch

00:34:33.619 - 00:34:49.629

And it's quite a viable path to gain a different set of skills because a lot of companies now have their own dedicated postdocs where you can go in for a few years to a company, learn some skills, and possibly go back to academia or even stay in the biopharma company and rise to the ranks.

Betsy Nabel

00:34:50.509 - 00:35:16.330

Absolutely.

I think, too, that as you said, many of the biopharmas have postdoctoral fellowships, have internships. You can go and you can learn skills, and what I have found is particularly interesting is that other companies are watching individuals who are in these training programs and are very, very quick to approach them and hire them into positions in their own companies.

Evan Noch

00:35:17.370 - 00:35:23.210

Right, okay, so that sounds like a great strategy for some really intrepid trainees out there.

Betsy Nabel

00:35:23.210 - 00:35:24.890

Yes, yes, absolutely.

Evan Noch

00:35:25.850 - 00:36:11.000

So, physician-scientists, we know, make up only a small fraction of the total physician workforce in this country and, you know, many early-career investigators started wondering whether the pathway might be sustainable.

And in our own work through the American Junior Investigator Association, we found that even up to 50% of early-career physician-scientists have considered leaving academia.

So, Rochelle, what is medicine, and what do patients stand to lose if fewer people choose to remain in these careers?

You know, we know the physician-scientist has been endangered. You've spoken publicly about your optimism for this biomedical workforce. So take us through your optimism meter, how optimistic are you about the future of the physician-scientist?

Rochelle Walensky

00:36:11.480 - 00:38:24.860

We've seen what happens at NIH.

It's sometimes, as you mentioned, it's a really robust period of funding. Certainly in the period that I trained with HIV, there was a lot of funding in the work in HIV. I greatly benefited from that, no question.

But we have also seen times of shrinking in those budgets and some reorganizations and challenging times.

I think there's no doubt that we are in one of those challenging times, but I also think that there will be a need to expand again.

We've seen these pendulums swing, and we happen to be swinging in one direction right now, but I do believe it will swing in the other direction; it may take a couple years for that to happen.

Funding is one area, of course; the number of slots, all of the challenges.

I think people will start to recognize that the seeds of discovery that are happening now will manifest in the next five, 10 years.

And there will be a real desire to maintain those seeds and that growth and to really, you know, when you are at the bedside and talking to someone who has an end-stage cancer, or when I was at the bedside talking to people with HIV, we were not looking for the cure.

We were looking for something that kept you alive long enough so that the cure could.

And we give patients that hope all the time, and so that is what the future of discovery is.

So we have to maintain that pipeline, and I do believe that there's a wealth of people who believe that, and we happen to be in a drier time than we have been in the past, and that we will have richness and robustness to come again, and we have to ride this through.

What I will also say is that when you talk about the small fraction of people who are able to do this bridging of both the physician space and the scientist space, there aren't that many.

And if not you, who?

Because we very much need, there is a tenacity, a perseverance, a grit that is associated with, and I tend tell my mentees, when it's 11 o'clock at night and you're still reading the paper and not going to bed, do that, right?

Because that's your grit.

Betsy Nabel

00:38:24.860 - 00:38:25.220

Right.

Rochelle Walensky

00:38:25.460 - 00:39:02.270

That is like what really keeps you up and what motivates you to ask the next question.

We need that workforce to ask the next question and to be able to scratch their head.

I used to say to folks at CDC, you will never be the first person to diagnose anything that will happen at a curious bedside where somebody says, that doesn't fit, or why is there no treatment for this?

Or why is the government not paying for this?

And it is those people we need at the bedside to tickle the curiosity of not just physician-scientists, but also scientists at large.

Evan Noch

00:39:02.430 - 00:39:08.670

Betsy, has there been a strategy you've used during relatively more difficult times to maintain optimism?

Betsy Nabel

00:39:08.830 - 00:40:28.000

Well, I think Rochelle's words are very wise.

I tend to look right now.

Evan, you used this word earlier, "ecosystem."

It's our biomedical ecosystem, and I think we have to think of this as a fairly large ecosystem in which we are collaborators together.

And by that, what I mean is academic health centers, biopharma, public policy; we are all working together to promote health and best welfare of the American public and our patients.

We're in downtimes. I agree with Rochelle, things cycle; there are going to be good times ahead. We have to persevere through this.

And I think it's by the tenacity of us locking arms, no matter what our role is and where we are and saying, we're going to push through this, we're going to get through this, we're going to come out the other side.

And I think it's communicating that hope to one another and to our colleagues, particularly our younger colleagues, to stick with it.

Absolutely.

There are definitely going to be brighter times ahead and we are going to need the entire workforce.

Absolutely.

Evan Noch

00:40:28.640 - 00:40:39.920

One of my colleagues always likes to say that the future of our field is bright, and so I try to listen to that and take that into account, you know, when you are struggling through difficult days.

Betsy Nabel

00:40:40.400 - 00:40:41.680

Yeah, absolutely.

Evan Noch

00:40:42.160 - 00:40:44.120

So we talked about–

Yeah, go ahead, go ahead.

Rochelle Walensky

00:40:44.120 - 00:41:21.980

No, I was just going to say there's this, I mean, when you think about — and I can't believe we haven't used the two words AI yet or the artificial intelligence yet — when you think about like the cusp of discovery that we are on right now and the potential across different fields that that will deliver also with its challenges, but that that will deliver.

There's so much that, there's so much science to be done in so many different disciplines that bridge medicine and scientific discovery and policy in all the spaces.

It is an extraordinarily exciting scientific time.

It just happens to be a little bit thin on the money right now.

Evan Noch

00:41:22.230 - 00:41:22.910

Yeah, you're right.

Betsy Nabel

00:41:22.910 - 00:42:31.490

And I think, Evan, the important message to come out of this podcast is really for young physician-scientists to think tactically about their strategy, not only to maintain hope and optimism, but how can I get through the next five years hoping that there'll be a brighter future on the other side?

And there you got to be tenacious, look under every rock.

I think it's very hard when the NIH is not funding key awards anymore to a de minimis, and so you've got to really turn and form collaborations with other individuals.

Look to patients, patient philanthropy, look to patient advocacy groups, modes for supporting research that are atypical, you might not have thought of before, and maybe take a bit of a detour and in order to gain funding, you study something that might be sideways to what you're interested in, you'll come back to what you're interested in eventually.

I hate to say it's a little bit of survival mode, but it's survival mode knowing that people are going to come out of this on the other side.

Evan Noch

00:42:31.490 - 00:42:33.730

And it'll make us stronger.

Betsy Nabel

00:42:34.690 - 00:42:35.650

We hope so.

Evan Noch

00:42:37.410 - 00:43:08.870

We talked about the why, so I want to talk about the how.

We know our system's not perfect, and we've had many innovative strategies which are emerging that are changing the way and even the length of time that we're training physician-scientists.

So, Betsy, if you could change one or two things about the way that we train and support physician-scientists today, what do you think would make the biggest difference?

Is it, is it the protected research time?

Is it funding, mentorship, sponsorship, clinical expectations, institutional culture, or is it something else?

Betsy Nabel

00:43:09.590 - 00:44:15.240

Shorten the trainings and shorten the training duration.

There's no reason why physician-scientists, MD-PhDs have to do full four years of medical school and four plus years of PhD science, absolutely not.

I think should be shortened to six years combined, at most, because you don't really begin to gain your research experience until you do an equivalent of a postdoc.

Likewise, I think many clinical fellowships are now being shortened for people who wanted to as well.

So I would shorten the duration.

And then I think, too, the culture of academic health centers need to change as well.

By that, I mean I think there just needs to be continued greater appreciation for the physician-scientists and helping them move more quickly through the system.

I think there are a couple handfuls of great academic health centers with leaders that do that right now, but I think we would benefit from that being applied more broadly across the country.

Evan Noch

00:44:16.440 - 00:44:32.060

And Rochelle, what do you think?

I also wanted to see whether you could comment on other resources that trainees might need.

Do they need wellness programs? Better salaries, caregiving support? Are there other things in our lives that might make these careers more sustainable? And how do we even do that?

Rochelle Walensky

00:44:32.780 - 00:46:30.220

It's not entirely clear to me.

I'm all for wellness programs, but it's not entirely clear to me.

I always find it interesting that we are a bunch of scientists, physicians, and physician-scientists and that we don't do the science to demonstrate whether these wellness programs work or whether we have an objective as to like what were they supposed to do and did they maintain that, but did they actually do that at the end and did we have them launch it?

If they were supposed to, you know, decrease burnout, then did they actually do that and did we have more retention because of it?

Oftentimes they don't even last long enough to see whether we have 10-year retention at it.

Not all of them, but many of them are a first thing cut in a financial cut.

I would agree with Betsy that the training time is too long and in fact, it's gotten longer, not shorter. So in order to be competitive in many MD-PhD programs now, you have to have demonstrated that you've done a year or two before you apply, that you've done some research and all the things.

So if it's an eight-year MD-PhD program and you did pre two Post-BAC years, then you're now at 10 years, and so.

I will say that it is a particularly vulnerable family time.

And so if you're talking about an eight-year program, a ten-year, but now you're talking about people who are in their 22s to 32s, right?

And that's when people meet partners and have families and whether we can think about loan repayment for a house or things that just make life easier.

And part of this too is, you know, I will proudly say I have three kids and I took three months of maternity leave for each one of them.

We can't put the pressure on to say, like, come back in two weeks, like. Now, I will also say that I worked my tail off when I, you know, when the kids were asleep because I was very self-motivated. But most of the people who are entering these programs have that similar self-motivation.

We don't have to, we don't have to put the fire under them, they feel plenty of fire.

So I do think some of the sort of family support to try and make those years, because we certainly wouldn't want to have a cadre of physician-scientists who have only done that.

Evan Noch

00:46:47.980 - 00:47:34.210

Right, we need to have a workforce that can manage many different aspects of their lives and have the resources to support that both at work, of course, so the funding, the mentorship, the sponsorship, but also for their personal lives.

So for a medical student, resident, fellow, or early career investigator who's listening and, you know, loves medicine, loves discovery, is thinking about this field, but also now is aware of the challenges that are really in the atmosphere wherever we go, right.

We never used to have people say to us, oh, you're in science. Oh, that's tough, right? This is relatively new these days.

So how would you advise someone thinking about this path and the optimism that they should have that it's a really viable career to go after?

Betsy, what do you think?

Betsy Nabel

00:47:34.370 - 00:48:30.730

I would encourage an individual to pursue their goals, to think about what motivates them, what interests them, to stay reasonably focused as they go through this pathway so they can potentially shorten the duration of their training.

But also think about what gives them joy and know that success can, and joy can be in the small moments in life, a patient who gets better or an opportunity that becomes available, and to celebrate those moments as they arise.

You know, our lives are a long journey and we will have multiple chapters and we need to find the joy in each of those chapters as well as celebrate the successes of those chapters.

That's what I would encourage an individual to do.

Evan Noch

00:48:31.610 - 00:48:45.050

And Rochelle, has there been a particular thread of discovery that's carried you through your career?

Something that started early in your career and you're still thinking about, or how things have evolved over time that's motivated you still every day?

Rochelle Walensky

00:48:45.960 - 00:50:34.340

Economics in health is an increasingly important question.

Drug pricing is an increasingly important question.

I focused on it in HIV to start, but as I think about the GLP-1s or whatever it is that is priced, is it priced for the people, for the populations who need it the most to be able to afford it?

So I think about that constantly.

I will also say maybe just for this audience, that when I look back at the arc of my career and the places where I was really most uncertain about whether, whether this was gonna all work, like, whether this was possible, it was in my earliest research days.

It was the, there is this component of before you get your first grant, before you have your first paper, you don't have a paper to reference in your grant, you don't have a grant to reference in your paper, and it just feels like, like, is this all gonna come together?

I think my first postdoc, postdoc research year, I applied for eight small grants in the hopes that somebody would see a sparkle.

You know, my earliest papers, you know, most of my papers, the thing that's interesting about our CVS is they, they document our successes, not our failures.

But each one of those papers on any of our CVs is likely ones that have been rejected from someplace before we, before it got accepted.

And so to just really reflect and say, like, there are some really uncertain times, and it is because I was persistent, had support, had incredible mentorship, had people around me who believed in me and said, keep going. And I remember that first paper, that first tiny grant, that first time my paper was referenced and up to date.

And then I would just say, celebrate the small wins, because don't wait for the grant to get funded, celebrate its submission, because that was a huge load of work.

Right?

Evan Noch

00:50:35.540 - 00:51:23.100

So it's the little steps along the way that matter. Ticking off the milestones and making progress.

So we talked about a lot of topics today.

We, of course, talked about why physician-scientists matter.

We talked about what a physician-scientist is and the broadening definition, some points of optimism even in these uncertain times, and also some ways to make this path a bit more sustainable.

Thinking about possibly shortening the time of training, and thinking more broadly about how a career can progress over time despite challenges that might emerge.

So I hope that our listeners will gain some key insights that might inspire them to build and to join into this physician-scientist ecosystem.

So, thank you so much, both of you, for joining me. It was great to have you here.

Betsy Nabel

00:51:23.980 - 00:51:27.260

Thank you, Evan.

And it's wonderful to see you again, Rochelle.

Rochelle Walensky

00:51:27.900 - 00:51:30.540

Thanks so much, Evan. Delighted to be with you.

Thanks, Betsy.

Evan Noch

00:51:31.100 - 00:51:37.570

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