

Science Will Win
Season 2
Episode 2 Script

Julia:

I think the major misperception about clinical trials is that they are a last ditch effort that the people who participate in clinical trials are those who are the sickest. Those who have no other options. And I think this is a really important misperception for us to address because clinical trials really can be about many things. And I think it's important to think about the fact that we are trying to develop something wherever you are in your disease journey. And that it's not just something to be done as a last effort.

ADAM: Clinical trials help us learn more about ways to develop medicines and vaccines that can prevent or treat medical conditions. Research must show a study medicine is safe and effective before it can be approved for use. Modern medicine would not exist without these studies and the volunteers who take part in them. Volunteers like Laurie.

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Laurie:

I'm 63 years old. I have been dealing with triple negative breast cancer for just about 12 years. I'm a wife, mother, grandmother, and I raise horses. We raise cows and I rescue as many dogs as my husband will let me and that's about me and, I've had a lot of support from my friends and family and I live a really good life.

ADAM: After Laurie was diagnosed with triple negative breast cancer, she was frightened. Triple negative is one of the most challenging types of breast cancer to treat.

At one point, her oncologist told her to go home and get her affairs in order. At the time, Laurie's subtype of breast cancer was even less well-understood.

But through her daughter's prudent research, Laurie's experience turned around. She found a clinical trial. And we'll hear more about Laurie's story later in the episode.

Clinical trials are where potential cancer treatments go into development after they are researched in a lab. They're how investigators determine if a potential treatment is safe and efficacious. Though they're an essential part of the process, there are still misperceptions. Which is why in this episode, we're going to dive deeper into the hows and whys of breast cancer clinical trials.

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This is Science Will Win. I'm your host, Adam Rutherford. I'm a geneticist, writer, broadcaster and a lecturer at University College London in the UK.

MUSIC TRANSITION

In the first half of this two-part story, we covered the basics of breast cancer, and how researchers are working to develop innovative new therapies to treat it. Therapies like targeted small molecule treatments, and cutting edge immunotherapies.

Now, we're going to break down the next step in how those potential treatments move forward from the lab.

To start us off: What *is* a clinical trial?

Well, clinical trials are studies that come *after* a potential treatment is identified through laboratory research. Trials compare a current treatment option or options with a new approach. Essentially, they bring the research to life.

You may remember Dr. Edith Mitchell from the last episode. She's a medical oncologist in the department of medicine and medical oncology at Thomas Jefferson University in Philadelphia. She's been working with clinical trial participants for decades, and she walked us through some of the different ways that trials can address how cancer impacts those participants. And there are *a lot*. Here's Edith.

Edith:

Some clinical trials are related to the development of new drugs. Other clinical trials may be involved in the determination of how to combine chemotherapy agents together or combine with radiation are other aspects of care. There are clinical trials that are evaluating the duration of radiation, the doses of radiation... So clinical trials evaluate all aspects of breast cancer treatment.

ADAM: To make these clinical trials run efficiently for the study participants, it takes a whole team of people working in collaboration.

Edith:

The nurses... nursing care, very important. The navigators ... the pharmacists... nutritionists that are part of the team... the medical oncologist.

ADAM: Everyone has their own special part of the process.

Of course, there's one more essential part of the team – the clinical trial participant. Trial participants are the key to the whole process. Their participation helps researchers learn more about potential therapies to develop much needed medicines for patients.

So, now we've got the team assembled. How do researchers design a clinical trial?

Julia:

I'm Julia Perkins Smith. I'm a global clinical lead at Pfizer in the breast cancer space, which means I work on breast cancer strategy and design for clinical trials.

ADAM: Now, we heard from Julia at the very top of this episode. Julia has been working in oncology for more than a decade now. At Pfizer, a lot of her work revolves around thinking about clinical trials and how to bring potential new therapies to patients. So she's going to walk us through the process.

Setting up a clinical trial starts with some basic questions.

Julia:

We think about the population that may benefit from a particular compound. So if you think about the drug, what are the properties of the drug? How may it help to treat the disease? That's kind of where we start. We think about which patients would be most likely to benefit. And with that, we then design a clinical trial around that and we define what questions are we gonna ask in the trial? What questions are we gonna answer in the trial?

So with clinical trials, we are often trying to answer whether or not we can improve upon care that exists today.

ADAM: In the effort to answer those questions, a potential treatment will typically go through four phases of study. Each phase leads to a deeper understanding of the new potential medicine. A potential medicine may advance from one stage to the next if there is appropriate safety and efficacy shown in the previous stage.

In a phase one trial, the sample size is small – usually less than 100 participants. This is the phase where researchers understand the safety of a particular medicine, and the side effects it may cause.

A phase two trial is typically bigger – there can be several hundred participants. Researchers administer the new therapy to study participants, sometimes studying different dosages in a larger group of participants to continue to monitor and record side effects.

In a phase three trial, the number of participants may range from several hundred to several thousand. By now, researchers have answered a lot of their initial questions: They've identified the right dose of the medication, and the right patients to receive that medication.

Finally, there's phase four. At this point, the medication has been approved for use by regulatory authorities in the indication studied in the prior clinical trials. Researchers may be looking to understand the potential *long-term* effects of a treatment or answer other questions related to the medication.

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ADAM: These days, Pfizer is incorporating new elements into the design of their clinical trials to help improve the participant experience and focus the clinical trial on the question being asked.

One of those elements is specificity.

Julia:

So over time, one of the things that we've seen evolve in clinical trials is personalization of therapy. So increasingly, your doctor may be doing molecular testing, genetic testing, other testing upfront about you or your tumor, your cancer, to understand a bit more about what might be driving it to grow or to spread. And with this increased personalization trials are often also becoming increasingly personalized. So it's quite possible that you may be eligible for a clinical trial only if you have a certain marker on your tumor or marker that's found in your blood. And so this is something that's part of the eligibility as we call it. So the, the, the factors that mean you're able to be included in the trial.

ADAM: : Though this specificity narrows the field of potential trial applicants, researchers hope that being able to personalize clinical trials may lead to understanding potential new therapies more quickly. Speaking of patients, how do would-be participants find out about clinical trials in the first place? Well, there are a lot of resources out there:

Julia:

One way to access information about clinical trials is through your own healthcare team. And to make sure that you ask questions about what may be available or appropriate for you. There are many other ways to access information about clinical trials. Pfizer has a site called [Pfizerclinicaltrials.com](https://www.pfizerclinicaltrials.com), which has information more generally about, about clinical trial participation. Additionally, depending on what cancer you may have, you can look at resources that are coming from advocacy groups specific to, to your disease. And many of them will link out to, to clinical trial information.

ADAM: The clinical trial website that Julia mentioned is also available in Spanish, at “Pfizer Estudios Clinicos dot com.” We’ll put both links down in the show notes.

Once patients and their healthcare team have done their research and considered all their options, the next step is to have that conversation with their healthcare providers.

Julia:

If you're thinking about being on a clinical trial, the process would often start with you approaching your physician to ask about it or your physician approaching you and saying, would you be interested in participating in this? I think it could be good for you at this time. And then you'll be given a lot of information about what would happen, how the

trial will run, what the medicine and the possible side effects might be. And you can start to make decisions for you about whether or not the trial seems like a good approach

ADAM: It's a bit like matchmaking – there are a lot of clinical trials out there and not all of them are going to be the right fit. The patient needs to decide what they're looking for and what may be appropriate for them at that time. And then the trial investigator needs to determine if the patient meets the requirements of the trial.

Researchers provide all of the details about the study the potential participant is considering during what is called 'informed consent.' Informed consent is one of the first and most important tools to help potential participants understand how their rights, safety, and well-being will be addressed throughout the clinical trial. The information provided will include the potential benefits and risks of the study. The information will help potential participants decide whether they would like to participate.

Julia:

So in a clinical trial there often are two groups of patients or participants. ... So it might be that you get the same, same standard therapy, or you might get a slightly different therapy that is thought to improve upon what is available today.

ADAM: Here's what that might look like in practice: Remember Laurie from the beginning of the episode? She has triple negative breast cancer and participated in two clinical trials. The first one was brought to her attention by her doctor.

Laurie:

on my 56th birthday, they told me I was stage four. So they said I had no treatment for me. But there was this phase one trial they would love me to consider.

ADAM: After seven months of the phase one trial, Laurie's tumor grew, which meant she could no longer participate. At first, Laurie assumed she had no other options. And she isn't alone in making that assumption.

So many patients and caregivers don't realize that clinical trials exist in the first place – and that they're even an important option for some patients.

Laurie:

My oncologist sent me home with compassion care and my daughter was not having that.

ADAM: Laurie's daughter studied in a breast cancer lab, and she knew she could continue to look for clinical trials that Laurie might be eligible for. She found one possible option online and presented it to Laurie's oncologist on the phone.

Laurie:

And so she said, over the speaker phone, she said, what about this? And he said, if you can get your mom in that trial... get your mom in that trial. So I felt a lot better because he had already just said he was sending me home to get my affairs in order. And now he's like, sounding like, well, this could be good.

ADAM: After going through the testing, Laurie was eligible to join, and she and her study team got started.

Laurie:

Like the things that I had going wrong, they were like, we need to do this. We need to do that. He didn't just care about my tumors. He cared about keeping me healthy. ...

I traveled every three weeks for about four years and then they decided, you know, you've been in remission a while. We need to be scanning you so much, things are looking so promising. So I went every six weeks.

In October I will be in remission six years.

I had one grandchild when this started and I have seven.

ADAM: Luckily, Laurie found a trial that really worked for her. That won't happen for everyone. But at a time when science is moving so quickly, it's an important option for patients to be aware of. And not enough of them are. Overcoming gaps in communication is one of the main challenges faced by researchers and potential trial participants. But even if a patient knows about a trial that could be right for them, other challenges remain.

Laurie, for example, lives in a rural area, and she had to travel quite a bit for her second trial.

Laurie:

So I flew every three weeks and I can remember at first I was just dragging herself and my suitcase and my daughter picked me up and, and I would be overjoyed while I was there because she has my granddaughters and, and her family. I love them all. And so it would be okay, but I wasn't in great health. But I immediately loved my team, like if I had a hangnail they'd have fixed it. So I immediately loved the attention I was getting and how all of a sudden, I just like started rising from the flames, you know?

ADAM: This trial was the right fit for Laurie's situation. And when she had to travel for care, she was lucky enough to be able to stay with her daughter. But, not everyone has that kind of option. Clinical trials can be a pretty big time investment. What if you have a full time job, or young children to care for?

And then, there's an extra wrinkle: These challenges are amplified for groups which have *also* been historically underrepresented in clinical trials. In 2020, the clinical trials that led to the FDA approval of four new breast cancer treatments only included between 2 and 9% Black participants, and between 0 and 9% Hispanic or Latin American participants.

At the same time, women of color are impacted more severely by breast cancer.

For example, Black women in the U.S. are 40% more likely to die of breast cancer than White women.

Black women are also twice as likely to be diagnosed with triple-negative breast cancer than White women – and you may remember that this subtype is more challenging to treat. Here's Julia Perkins Smith:

Julia:

So it's really important for clinical trials to have populations participating that reflect the general population of a given country or, or area where it's being run. The clinical trial will help to answer the questions that we seek to answer in the trial itself. Once the trial's complete, should it be successful, a medicine will be approved and will be available more generally for your doctor to prescribe it's important for us to have data that reflect the population that, or the populations that a physician is trying to treat in the clinic so they can understand how the data applied to the patient sitting in front of them. And that may be you.

ADAM: To reach underserved populations, researchers are partnering with organizations and finding new ways to address disparities in communication, access, and representation. To do that effectively, patient advocates also have an important role to play.

Jamil:

My name is Jamil Rivers and I am the CEO of the Chrysalis initiative.

ADAM: Jamil is one of the many advocates on the front lines of the effort to close the gap in clinical trial representation – and raise the standard of cancer care for women of color.

Jamil:

The Chrysalis initiative is a cancer advocacy organization. We're focused on interventions in order to address disparities caused by bias and racism. So we know that there's research on this and there's so many innovations and legislation coming down the pipe, but we're really doing what we can to address this problem now.

ADAM: Jamil and her team do community outreach and education for all Black women – even if they haven't been diagnosed yet. They want people to understand the risks so they can be proactive. And they also partner with people who work in healthcare.

Jamil:

We work with cancer centers, hospitals, in order to provide them with the same patient support as far as wraparound services and patient navigation.

And we're also providing training to them and revealing their blind spots when it comes to where does racism and bias impact their care delivery? A lot of times they still rationalize and attribute these disparities as being just social determinants of health related issues and socioeconomic issues where there's lack of insurance or lack of

access or lack of suitable income. But we find that we also have to address the bias that, you know, we're dealing with people in the healthcare system and some people still do have bias and racism and it ends up impacting the care that these women of color are receiving.

ADAM: The goal is simple: Connect patients with clinical trials that could be right for them – and help them navigate the process. And Jamil has seen firsthand how vital it is to give people the tools they need to find the trials that may be right for them.

Jamil:

It feels amazing to connect people to the clinical trial that they need.

You know, I feel like there's a lot of misinformation in the community of color when we're thinking about cancer care and what it means to participate in a clinical trial. Quality standard of care includes clinical trials.

ADAM: Misinformation and disinformation are huge barriers. And it's a tough one to solve completely. But Pfizer is working to combat it in their own trials, through partnerships with other like-minded advocacy groups, like "Touch, The Black Breast Cancer Alliance." Together, they create educational materials that address misunderstandings about the clinical trials process.

Pfizer also partnered with the Tigerlily Foundation, an education and advocacy group focused on women under 45 with breast cancer. Pfizer and the Tigerlily Foundation ran Health Equity Advocacy and Leadership – or HEAL – workshops. They were designed to help identify barriers to clinical trial access, and better understand the breast cancer journey for women of color.

Understanding these disparities and addressing the information gap is only one step toward improving representation and access in clinical trials. Something that's trickier to solve: where these trials take place.

Here's Julia again.

Julia:

Another effort that Pfizer has undertaken is thinking about working with networks of clinical trial sites within large metropolitan areas. Partnering with institutions broadly in a Metro area, we can drive greater diversity into the clinical trials and make sure that we have strong representation from all communities.

ADAM: Increasing the number of potential trial sites, and how accessible they are, is obviously important for increasing participation. But there's yet another emerging approach that can make participating in a trial even easier. It's called a "decentralized clinical trial."

Julia:

There is often a fair number of visits to a study site or lab tests to be done when you're on a clinical trial, or even as you're getting standard care outside of a clinical trial. Decentralizing some of the lab testing or, or other elements of the trial may allow patients to get some of their care at home, close to home at work and better fit the experience into their day to day life.

This has been something that has been around for a little while, but really got accelerated, um, during the COVID 19 pandemic, when not everybody felt comfortable or was able to get to their healthcare provider.

So an example might be having a lab draw done by a home health nurse in your home, or going to a local freestanding lab that's very close to you or your home or to your work. So these are just examples of things that might make the clinical trial experience fit more into your day to day.

ADAM: Incorporating decentralized elements into a clinical trial may improve a patient's experience, and help them balance their personal life with their clinical trial participation. But Julia explained how decentralizing can also potentially give research teams a different perspective on the trial data.

Julia:

As we decentralize things and potentially make them more accessible, we may be able to get a broader group of patients to participate in clinical trials. Historically, the numbers for clinical trial participation are quite low. Somewhere in the neighborhood of, you know, 5% of patients participate in a clinical trial. By decentralizing some elements and making the clinical trial more convenient for patients, we hope that we can increase the interest, and participation in clinical trials, which will help us to answer questions more quickly, and progress the science and treatments for patients with cancer more quickly.

ADAM: Taking decentralization one step further, researchers are also leveraging "real world data." This technique can help researchers expand their reach and potentially gain additional useful information in the clinical trial process.

Julia:

So real world data is data that's collected in sort of our day to day lives and day to day clinical practice. Your electronic health record is an example of real world data outside of clinical trials. This use of this data can actually really accentuate what we learned in clinical trials, partially because we do see underrepresentation of certain populations in clinical trials, but also just because of the size of a clinical trial, relative to the overall population that may have a particular disease, real world data can really offer a broader look into what's happening, the treatment patterns. And this is really something that's grown tremendously in terms of availability and use to help define healthcare patterns in broader populations.

ADAM: Real world data can help researchers learn more about trial participants, or to look at a control group of patients who are receiving standard care *outside* the clinical trial. This can also enable researchers to diversify the patient base for clinical trials.

All of these elements – clear information; advocacy; accessibility – they all come together to help improve the experience for participants and their caregivers.

But at the heart of it all is the people: The participants, and the team making it all possible. For Laurie, the study team made all the difference.

Laurie:

They seemed personally invested even though, you know, they have many patients. If I emailed something to my nurse navigator, she answered me. So reasonably soon. And so that always made you feel like they knew you and they cared for you... So emotionally they made you feel like you can do this and physically... I'm not kidding, if I had any little thing, he was, let's get this solved. ... So you did feel like they were very invested in you. And it was a good feeling.

ADAM: All of this cutting edge research is giving rise to potential new treatments that will hopefully help patients manage their breast cancer better than ever. Still, the treatments we have today and those being developed have a long way to go toward a possible cure.

This work is vital – and people like Julia, who are contributing to that work, know it.

Julia:

I certainly have had family members with breast cancer and very close friends of mine have had breast cancer. So I think about them often, as well as patients I treated in the past and how I want better outcomes for them.

One inspiration I draw on when I think about breast cancer in the future of treatment for breast cancer is an idea of a world, of course, without breast cancer, but certainly a world where women and men can function and feel well as they go through their treatment.

I've spent nearly 15 years of my life now studying, thinking about breast cancer. And I really am very hopeful about the future and where we're headed.

ADAM: We have the tools and knowledge to make real change, especially when: researchers, oncologists, patients, and patient advocates all work together for the cause.

For Laurie, this journey is extremely personal. But she also wants to make sure other patients can find potential options.

Laurie:

I want patients to know how to find clinical trials

I want them to know they may have to look for them themselves. And that the information is there for them to look for them.

Patient advocacy gives me great hope.

I think a lot of people do better when they see someone that's in the same spot as them and hear hopeful stories or hear, how did they manage that? Or what did you do? Who did you talk to? You know, there's more of that now. So I'm hopeful about breast cancer, all cancers, that that's out there for people to access.

MUSIC TRANSITION

END CREDITS

Science Will Win is hosted by me, Adam Rutherford.

If you'd like to learn more about what we discussed in this episode and about Pfizer's cancer clinical trials, head on over to PfizerClinicalTrials.com/oncology.

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