

Anonymous

On my 35th birthday, after talks with my husband and deciding we were ready to start a family, I stopped taking my birth control pills. After a year I had not gotten pregnant, so we met with a fertility specialist who had me undergo a lot of different kinds of tests, some that were really painful and invasive, and he determined that I have polycystic ovary syndrome but found no other underlying issues. PCOS can make it difficult to get pregnant naturally so my doctor recommended I try intrauterine insemination. I ended up doing four IUIs with him, none of which resulted in a pregnancy, before I started seeing a new doctor who recommended I move on to IVF. My egg retrieval resulted in five healthy embryos that we had frozen. And since then I have undergone three embryo transfers but none of them resulted in a pregnancy either. I've done genetic testing, countless rounds of blood work and ultrasounds, a mock transfer cycle, a hysteroscopy, an HSG scan, I stopped eating gluten, dairy, and sugar, I do monthly ovulation tracking, have regular acupuncture and meditation sessions. Made my fertility a full time job. And still I have no answers.

I just turned 39 and I'm always wondering why not me? My friends are all having kids and growing their families exactly as they had planned while I'm just spinning my wheels. There's so much I wish I'd known about fertility when I was younger. None of my female relatives had fertility issues and I always had totally normal results at my annual exams with my gynecologist. Plus my PCOS symptoms were masked by the pill. So I just had no idea that I would ever end up with unexplained infertility. I always assumed that if I had trouble getting pregnant, especially since I didn't start trying until I was 35 which is considered geriatric in the medical world, that IVF would be a safety net; that it would definitely work. My last embryo transfer was over a year ago and while I have two perfect embryos still sitting frozen and ready to use, I've been too scared to try again. Going through the appointments, the injections, dealing with the effects of the hormones, holding onto hope and telling myself this time will work. I'm just not sure I'm strong enough to go through it all again.

TPWKY

(This Podcast Will Kill You intro theme)

Erin Welsh

Thank you so much for sharing your story with us. And a huge thank you to everyone who reached out and shared their stories with us, you'll hear more firsthand accounts later in this episode and in the next couple of episodes that we'll be doing on this topic. And there were so... We were truly overwhelmed in the best possible way by the sheer volume of responses that we got. Like I never expected it. It was incredible. So thank you to each and every one of you who sent in your stories. We appreciate you so, so, so, so much.

Erin Allmann Updyke

We really do. It was incredible. It was a privilege to get to read through all of your stories. And thank you so much to everyone who wrote in and we tried to include as many people as we possibly could. So you're going to hear a lot more firsthand accounts throughout this episode and our next couple of episodes. So thank you all so much.

Erin Welsh

Yes. Hi, I'm Erin Welsh.

Erin Allmann Updyke

And I'm Erin Allmann Updyke.

Erin Welsh

And this is This Podcast Will Kill You.

Erin Allmann Updyke

Welcome to the first of three-

Erin Welsh

Yeah.

Erin Allmann Updyke

Episodes.

Erin Welsh

We said in our social media post that we were going to do a two parter. And then as we started to like plan what that two parter would look like, we realized very quickly that this could not only be just two parts, that it needed to be at least three if not many, many, many more. We're stopping at three.

Erin Allmann Updyke

Yeah. It's going to be a lot but we are really, really excited about it. So buckle up. Three weeks.

Erin Welsh

Buckle up. Do I even need to say that this is such a huge topic? It just is such a huge topic. We always say this but this time we're really showing you that we mean it by dividing it into three episodes. And so just to give you an overview of what each of these episodes is going to include, the first episode, so this one today, is going to focus primarily on infertility. So I'll be talking about the concept of infertility as it has changed over time, leading up to the development of assisted reproductive technologies in the 20th century. And Erin will go into what to expect if you go in for a fertility exam and how fertility is assessed.

Erin Allmann Updyke

Yeah. And then our second episode will be mostly IVF focused. So what is IVF? How was it developed? What steps had to happen for it to be developed? How does this technology actually work? And what does a typical cycle, if there is such a thing, of IVF actually look like? And then our final episode will explore IVF as it has grown in terms of both industry and innovation, from some ethically murky areas to some pretty incredible new technologies.

Erin Welsh

Even with three whole episodes there are things that we're not going to be able to cover in depth or that we'll miss entirely. And frankly that would probably happen even if we did an entire series on IVF. And as always we will post the links to sources where you can find more info should you want it. But overall our goals for these episodes are number one, to explain what IVF is and how it works. Number two, talk about other forms of ART, assisted reproductive technologies. Number three, present an overview of how IVF technology was developed. And four, briefly discuss some of the ethical issues that have arisen with ART in terms of access, regulation, and as an industry.

Erin Allmann Updyke

And this is suffice to say a very complex and very multidimensional topic. And there are a lot of people out there with really strong feelings about it. Our intent is not to add to that noise by sharing whatever our individual thoughts that we might have about infertility and IVF but simply to just share all of the incredible information that we have learned in the course of this research. So hopefully we do an okay job. But of course before we get into that, it is quarantini time.

Erin Welsh

It is. Erin, what are we drinking this week?

Erin Allmann Updyke

We're drinking A Work of Art.

Erin Welsh

Good one. It's a good one.

Erin Allmann Updyke

It's a good one. It's that the little inside joke there.

Erin Welsh

Yep, yep. Oh and by the way, this is what we'll be drinking for this week and the next two episodes on this. Yeah.

Erin Allmann Updyke

Classic.

Erin Welsh

Yeah. And in A Work of Art, tell me what's in it. What are the delicious ingredients?

Erin Allmann Updyke	It's kind of essentially like a cucumber gimlet. So we've got gin, we've got lime juice, we've got cucumber, we've got some simple syrup. You can throw some sparkling water in there if you like. It's really refreshing, really tasty. And we'll post the full recipe for that quarantini as well as the non alcoholic placeborita on our website thispodcastwillkillyou.com and all of our social media channels.
Erin Welsh	We will. On our website thispodcastwillkillyou.com you can find all sorts of cool things including but not limited to transcripts, links to bookshop.org and Goodreads list, links to music by Bloodmobile, links to merch, links to our Patreon, links to other things I think.
Erin Allmann Updyke	All the things.
Erin Welsh	Sources, just all the things. Take a peek, see what you can find. Tell me what I'm forgetting.
Erin Allmann Updyke	You didn't forget anything actually that I noticed, I thought that it was great.
Erin Welsh	Wonderful. Then check. Done.
Erin Allmann Updyke	Done.
Erin Welsh	Should we get started?
Erin Allmann Updyke	I think that we should, I really think that we should.
Erin Welsh	Let's just take a quick break and then I'll get started because we're doing all of these episodes a little bit out of order where I go first and then...
Erin Allmann Updyke	I can't wait.
TPWKY	(transition theme)
Anonymous	So my husband and I, we started trying to get pregnant as soon as we got married. I already had my eldest son from a previous relationship but we were desperate to carry on and grow our family. We tried and after trying for a year, we decided to have some investigations. We went to the doctor and it turned out that my husband had low sperm count and low sperm motility. And so we were told that the only real option was to have IVF. We found a clinic that we liked and we also decided to do egg donation alongside our IVF treatment. So what that meant is that I donated half of the eggs that were harvested during the treatment to another couple. So we got nine eggs when they went in to collect them. So we gave five to the other couple and we had four ourselves. The procedure needed ICSI as well, which is where the sperm is actually injected directly into the egg. So all four eggs were fertilized. And then it was a very anxious wait, calling the lab every day to see if our embryos had been dividing and developing.

And then three days later, we chose, well the doctors chose the best two embryos to transfer back into my uterus. It was a very nerve wracking day. But we did it, we went home, and then it was the two week wait to find out if it worked and if I was pregnant. We happened to go away for the weekend, it was our wedding anniversary. And just by some coincidence we were staying at our same hotel we spent our wedding night and we ended up in the same room we spent our wedding night and that's where I did a pregnancy test and we got a positive result. Then six weeks later we saw their little heartbeats and we found out it was twins. And then those twins are now 12. I also found out that the couple that I donated my eggs to, they had a little girl as well. So their pregnancy was also successful. So really best case scenario for everyone.

Maddie

Hi, my name's Maddie, I'm 28 and my husband and I are currently undergoing IVF in the hopes of having our first baby. We got married young seven years ago and we weren't really in a rush to start a family but we did decide to start trying about 2.5 years ago. We were trying for about a year and during that time I noticed that my already painful periods were now becoming even more difficult to manage and I also noticed some urinary and bowel problems that were quite concerning. It took that year of trying to finally get a referral to a gynecologist. And within the 1st 10 minutes of meeting her, she was pretty convinced that I had endometriosis and wanted me in surgery in two weeks. Two weeks later, I had a laparoscopy and a hysteroscopy and my surgeon had found stage four endometriosis affecting my uterus, ovaries, fallopian tubes, bowel, and bladder. But thankfully she managed to remove the majority of it and kind of said that for the next six months I'd probably be my most fertile and that she'd be quite surprised if I hadn't naturally fallen pregnant.

And in that six months, those bowel and urinary problems had subsided and so too did the period pain. So we were quite hopeful. Fast forward six months and still nothing was happening. So we requested a referral to a fertility specialist and she informed us that my husband had a low sperm count. His count was roughly 1.5 million sperm per ml and the normal reference point is 15 million per ml. So she actually recommended ICSI over IVF to ensure a good fertilization rate. October last year, I had my first egg retrieval and I was really lucky and had a really positive experience. I wasn't shy of the needles, being a healthcare worker, and I had a really good result. We retrieved 20 eggs and 10 were actually mature enough to fertilize. Nine did fertilize overnight. And by day five, I had six really high quality blastocysts.

We ended up doing a fresh transfer with one of them and froze the rest and unfortunately that transfer failed. And since then we've done a further two frozen embryo transfers that have unfortunately also failed. I've actually just done my second hysteroscopy in just over 12 months to see if there's some kind of issue local to my uterus that might be preventing implantation. And I've also done multiple blood tests to rule out other issues such as immune or clotting disorders. We are actually hoping to do another transfer within the next month or two and we remain really hopeful. We both say this is one of the hardest journeys we've ever been through and we're very aware that there are people who have been on even longer, more painful journeys than us. Every day is a battle and every failed cycle is a full cycle of grief. But we're so grateful we have the means to do this and at a time where science is learning more and more every day about infertility and how to overcome it. And hopefully one day we'll get our little baby.

TPWKY

(transition theme)

Erin Welsh

It seems to me like every few months there's a headline that declares in somewhat alarmist tones infertility is on the rise. Is it?

Erin Allmann Updyke

Is it?

Erin Welsh

Is it? The short answer is no. And I know that you'll give the longer answer later in the episode, Erin, but most research shows that actually global infertility has changed very little over the past few decades if at all. I think the more accurate headline would be 'Headlines About Infertility Being on the Rise Are on the Rise'. And I'll get into more of the possible reasons for that a little later on. But I wanted to start with these headlines because I think they provide an opportunity for us to think about what infertility can mean for us today and how those definitions are fluid across space, across time, and across intent.

There's the medical definition of infertility which the WHO says is 12 months of regular unprotected sex without pregnancy. And that definition actually has been, like the medical definition has been revised over the years. There's primary infertility, so like no pregnancy ever, and secondary infertility, at least one pregnancy previously. And then there's what insurance companies will consider to be infertility which changes what they're willing to cover for fertility treatment. There's how infertility is used politically as a scare tactic to reinforce gender roles. There's fertility rate which some headlines conflate with infertility rate, so like 'the average woman in 2024 is giving birth to fewer kids than in the 1950s so infertility must be on the rise'. That's not... Yeah. That's not the same thing.

Erin Allmann Updyke

I have like two whole pages that I had to cut down just about that, Erin.

Erin Welsh

It's very, very, very different. Yes.

Erin Allmann Updyke

Yes!

Erin Welsh

Infertility, the concept of infertility varies also across cultures. So for instance there are some cultures that consider someone to be infertile if they haven't given birth to a boy yet. Is it a snapshot measure or a lifetime measure? If you become pregnant after two years, three years, five years, seven years of trying, does that still count? Like does infertility apply to couples or to individuals? Does intent matter? If someone cannot become pregnant due to a medical issue but they have never intended to become pregnant, does that count as infertility? Along those same lines, if someone never seeks treatment for infertility because of lack of access, personal beliefs, other reasons, are they counted in these measures of infertility? Will their voice be heard? The bottom line is that infertility can mean many different things to many different people. And it can be difficult to get a handle on where these modern measures of infertility are coming from, who they are capturing, and who they are failing to capture.

This is one reason why we should scrutinize headlines claiming a rise in infertility rates. First of all, compared to when? The data that go into modern measures of infertility are incredibly messy, let alone estimates from the early 20th century or before when infertility was even more shrouded in silence than it is today. Secondly, these headlines tend to ramp up during periods of backlash against progressive movements like women's liberation in the 1970s which was followed by claims that the traditional nuclear family was at risk because career hungry women were waiting too long to have kids. And then this called for a return to a traditional working husband, stay at home mom arrangement. And we're seeing echoes of that today with this tradwife trend and all of the birth control disinformation that's circulating around social media lately.

Erin Allmann Updyke

Yeah.

Erin Welsh

And the last thing I'll say about these headlines is that right alongside them are reports of out of control global population growth which shows that it's not about infertility overall but it's rather concern over who is having babies and who isn't. If infertility in its biomedical definition is truly on the rise globally or regionally or within populations, we should investigate why that is. Just because infertility is hard to measure doesn't mean that we shouldn't try. And if we want to do that, we have to take in all of the various meanings of infertility. What it means to people measuring it, what it means to people experiencing it, what it means to people treating it, and how those meanings change over space and time. For a truly amazing overview of this subject I highly recommend 'The Palgrave Handbook of Infertility in History' edited by Gayle Davis and Tracey Loughran, which was my main resource for this first episode. It's a wonderful collection of essays and chapters and works that I really just all across the board... I mean I was like completely overwhelmed but I loved it.

So I want to first take a step back and consider what it means to look for traces of infertility throughout history. Humans have experienced infertility forever but infertility doesn't leave marks on the bone and it doesn't get logged in yearly mortality rates or disease tallies. With the exception of the last century or so, it is rarely openly discussed by those who are experiencing it, maybe because they didn't know how to read or write, maybe because their writings were not seen as important for preservation, or maybe because shame or pain kept them from including it in their writings. There do exist some examples of letters or diaries where women have described their feelings about not being able to have children or not being able to have additional children. Secondary infertility is even more difficult to spot in history. But these writings are fairly rare.

So I'm going to read you a quote from Henriette Obermüller-Venedey, writing in her autobiography in 1870. Quote: "I bought books, I talked to women's doctors, I decided to do everything they told me to. I saw the midwife, I was told this and that, I heard that there was a recipe but that it might kill me. I wouldn't have minded if only I could have become a mother, if only I could have borne Gustav a child. I was so certain it was my fault." End quote. Infertility or difficulty conceiving shows up in pagan mythologies with goddesses of fertility in plays and religious texts like the Bible, in epic poems, in works of art. We see traces of infertility in instances of royal succession, like where a male heir is not produced. But for the most part in those stories it stays more of like an historical plot point rather than the lived experience being important on its own.

Probably keeping infertility partially shrouded in silence throughout history is its affiliation with sex, which has always been pretty taboo in Western culture, especially sex without procreation. As well as the fact that bearing children has been the expectation, the norm throughout all of history. And when that didn't happen it was A) noticed and B) tinged with shame, indicative of a problem. Finally infertility has mostly been seen as a woman's issue. Thus not as important for documenting. Who is doing the writing after all? Who is actually deciding what is important in history and what should be preserved or not? Would they have viewed a woman's infertility as relevant to the historical record or just to whatever story they're telling?

Erin Allmann Updyke

Right.

Erin Welsh

As Davis and Loughran, the editors of this book put it, quote, "These problems are magnified when tackling infertility, an experiential state that exists as an absence, the failure to engender pregnancy, that plays out on the bodies of women, a historically marginalized group, and that it seems often further stigmatizes its subjects, thus rendering them inarticulate or silent." End quote. Where we see the most references to infertility or maybe more precisely involuntary childlessness is in medical writings with hypotheses as to why someone is not able to become pregnant or treatment handbooks to target different perceived causes of involuntary childlessness, ranging from the biological to the psychological to the spiritual. Today if someone goes in for fertility testing, doctors will try to pinpoint the precise issue and come up with treatment based on that.

But we know a whole lot more now about reproductive science than for instance Ancient Greek physicians who largely viewed reproduction in like plant soil terms. The man provides the seed, semen, the active dynamic material, and the woman provides the substrate, the soil, the menstrual blood in which the seed is planted. And this agricultural metaphor reinforced the role of the man as the active partner and the woman as passive, which still finds its way into the way we talk about some of these aspects of fertility or reproduction, the sperm invading the egg, like this very much active role and then passive role.

Erin Allmann Updyke

Yeah.

Erin Welsh

And it also explains why the terms fertile, barren, and seed are associated with producing offspring.

Erin Allmann Updyke

I never in a million years would have thought about that.

Erin Welsh

There is like so much about agriculture and reproduction in Ancient Greece. And it makes sense. I mean, yeah. And also what kind of makes sense along these same lines is the treatment. So in Ancient Greece a lot of the treatments for improving conception, and this extended all the way to medieval times, they tend to center around either balancing out the humors of course or prescribing recipes that included ingredients associated with fertility, like the sexual organs of animals, of certain animals in particular, plants that produce a whole lot of seeds, or animal dung which was used to fertilized fields for planting crops.

Erin Allmann Updyke

Oh gross but logical in a way.

Erin Welsh

Yes. And while many of these treatments were geared just towards women, some involved both a husband and a wife and a small handful were just for men. Recipe books from medieval England sometimes included tests meant to show the source of the infertility. Like is it from the husband? Is it from the wife? For example, quote, "The man and woman should each urinate into a pot of bran and the pots were then left to stand for a period of 7, 10, or 14 nights. At the end of this time, if the fault lay in one partner, then the pot containing his or her urine would stink or contain worms. But if neither pot contained worms, then may men help them to have a child through medicines." End quote.

Erin Allmann Updyke

Aye aye aye.

Erin Welsh

I mean is there something to that? I don't think so but it is very interesting. What worms?

Erin Allmann Updyke

What worms?

Erin Welsh

What worms? I'm so curious.

Erin Allmann Updyke

A cup of bran and urine. I mean I don't even know what to say.

Erin Welsh

Yeah. You don't have to say, you don't have to know.

Erin Allmann Updyke

I'm left speechless.

Erin Welsh

And of course these books would not have been the only sources of information about pregnancy and conceiving. We have no way of knowing how much knowledge was exchanged between women or between men and never written down. These treatments and tests followed the logic of what was then thought to lead to pregnancy. Which by the way, like just as a reminder, not like you need the reminding but I mean we all need the reminder, you couldn't go out and get a test-

Erin Allmann Updyke

Right.

Erin Welsh

To tell you within a matter of weeks that you were pregnant.

Erin Allmann Updyke

Yeah.

Erin Welsh

You had to wait like a long time.

Erin Allmann Updyke

Very long time.

Erin Welsh

Yeah. And I think it also forces us to consider how much our current definition of infertility depends on our biomedical understanding of reproduction which we really only gained in the 20th century. I feel like historically infertility was an absence of something. And then it grew into more refined definitions of oh it is a presence of this issue, it is a presence of this issue, all of these different things. And also I mean of course I want to acknowledge that unexplained infertility makes up a huge proportion of infertility cases or people who seek infertility.

Erin Allmann Updyke

Oh yeah. We'll get there.

Erin Welsh

We will get there. The word 'infertility' came to prominence in the late 1970s, replacing the terms 'barren' and 'sterile'. People knew-

Erin Allmann Updyke

Did you say... Sorry, sorry, sorry.

Erin Welsh

Yeah, yeah, yeah.

Erin Allmann Updyke

Did you say 1970s?

Erin Welsh

Okay, that's what I read that it was like... I think that infertility had been used, it had been a term but it really I think replaced the other two around that time.

Erin Allmann Updyke

Okay. That makes sense. That makes sense.

Erin Welsh

Yeah. People knew what sperm and eggs were since the 17th century but it wasn't until the late 1800s that scientists figured out how they worked together.

Erin Allmann Updyke

Cool.

Erin Welsh	Yeah. That's an entire story.
Erin Allmann Updyke	It's also so, so... That's so much earlier than I expected somehow.
Erin Welsh	Earlier?
Erin Allmann Updyke	It isn't but it is.
Erin Welsh	Okay.
Erin Allmann Updyke	The 1880s? Wow.
Erin Welsh	<p>Yeah. Like the late 1800s. I don't know why it struck me as late because I feel like if they had known what they both were but I think it was more just like the role that each of them played. But even still, sperm and eggs are just one piece of the puzzle. For much of human history, the nitty gritty of human reproduction remained more or less a mystery and where there's room for doubt or uncertainty, there's often room for blame. Women historically and even today tend to shoulder more of the blame when it comes to difficulty conceiving.</p> <p>And it's not uncommon to hear modern stories where a straight couple goes through fertility testing, the doctors find a potential contributing factor in the woman, they take steps to treat that, and then months or years down the line finally like still nothing's happening and they finally test the man and find additional issues. In this 'Palgrave Handbook of Infertility' book, I came across a story of a woman who quote "over a two year period in the late 1940s, underwent two dilation and curettage operations, a tubal insufflation, a salpingogram, an endometrial biopsy, and a host of injections, courses of tablets, and douches before her husband's semen was tested and found to contain no spermatozoa." End quote.</p>
Erin Allmann Updyke	Wow.
Erin Welsh	So yeah. We can see this blame with many royal families where women were seen as responsible for producing an heir and a spare, as well as other children for forming political alliances. If a woman failed to fulfill her royal and marital duties in that way, at the least she was frowned upon, at the most she was disposed of, as Henry VIII famously did to several wives. Even though scholars think that he was probably the common denominator and that it was actually quite common because at the time 40% of Tudor marriages had no children.
Erin Allmann Updyke	Really?
Erin Welsh	Really.
Erin Allmann Updyke	Wow.
Erin Welsh	That's what at least historical calculations estimate. A marriage without children could be seen as a sign of god's disapproval or later on unpatriotic because a thriving population was important for military and economic strength. But of course there's the caveat that it had to be the right people reproducing.
Erin Allmann Updyke	Right. Right. I mean honestly that's still the vibe from all of the articles today about fertility rates or infertility rates. Like that's the vibe.

Erin Welsh

It is. Yep, it is.

Erin Allmann Updyke

Yep.

Erin Welsh

100%. It is eugenic-y. Eugenic adjacent. For centuries women have been scrutinized for everything. Their behavior, their bearing, their morality, their personality, their indulgences, their activity, their education, and especially their bodies. Too fat, too thin, too tall, too short, whatever it is, it was their fault. In the 19th century it was thought that the more passionate the woman, the more likely she would be infertile. Sex ending in an orgasm for a woman was thought to be less conducive to childbearing.

Erin Allmann Updyke

Oh!

Erin Welsh

Which is one of the more depressing things I've read.

Erin Allmann Updyke

It's also not accurate scientifically, let me tell you.

Erin Welsh

Oh fascinating. Okay. The moral and medical explanations of infertility blended together. By the late 1800s, the causative agents of gonorrhea and syphilis and their effects on fertility were recognized. But in general, physicians believed that women's reproductive biology was more complex and so women were more likely to experience complications from these infections compared to men. One physician, R. A. Gibbons, said in a 1910 address to the medical graduates college that quote "in many cases of sterility about which you will be consulted, it is undoubtedly the faults of the woman." End quote. An 1896 book titled 'Sterility' by Robert Bell begins with quote "in considering the important subject of sterility in the female, we must not forget the fact that occasionally impotency may exist in the male. This is of such rare occurrence however that it may be looked upon almost as phenomenal. Moreover, when it does occur, it can generally be traced to the effects of some previous gonorrheal or syphilitic attack." End quote.

Erin Allmann Updyke

Wow.

Erin Welsh

Yeah.

Erin Allmann Updyke

It's just so blatant. It's also so interesting the use of different words, right? Like sterility vs impotence. It's very interesting.

Erin Welsh

Yep. It is.

Erin Allmann Updyke

Yeah.

Erin Welsh

It is. And I don't know if the definitions have, I mean I'm assuming that they have changed or like the umbrella has changed.

Erin Allmann Updyke

Yeah.

Erin Welsh

I don't know.

Erin Allmann Updyke

It's interesting. They all just have such weight to them no matter what, like on both sides.

Erin Welsh

Yes, yeah.

Erin Allmann Updyke

Yeah.

Erin Welsh

But this attitude, this belief that women were more to blame for any sort of issues of infertility in a couple, this became a self fulfilling prophecy. Because if physicians were taught that male infertility was rare, then they were less likely to examine the husband of a couple having difficulty conceiving. Because also, I say husband because for the most part in this period of time the only people who were seeking or the vast majority of people who were seeking and would be seen by physicians had to be a married couple. Because there was that sort of morality component to it. Some physicians did recognize that it wasn't necessarily the wife's fault, the woman's fault, with eugenic-y undertones. So quote: "A great many women are through no fault of their own incapable of becoming mothers. The reason for this is that they have been infected by venereal disease, which is the great foe to the reproduction of the race. The husband has infected his wife and thus robbed her of the power of maternity." End quote.

Erin Allmann Updyke

It's so interesting, Erin.

Erin Welsh

Yeah.

Erin Allmann Updyke

There's just so many layers of connotations and assumptions that go into a sentence like that.

Erin Welsh

I know, I know. There are directions. Like where is the blame going? Who is the active, who is the subjective... Yeah.

Erin Allmann Updyke

Yeah. Robbed her. Like everything about it. Ugh.

Erin Welsh

Robbed her. The word choices.

Erin Allmann Updyke

Yeah.

Erin Welsh

Yeah, yeah. And we've got more because just wait for it.

Erin Allmann Updyke

Of course we do.

Erin Welsh

The development of testing and treatment for STIs in the early 20th century helped to reduce infertility associated with those infections but it didn't remove the language of blame. The psychogenic model of infertility rose to prominence in the 1930s. Basically this idea that certain women brought on their infertility by not adapting to established gender roles.

Erin Allmann Updyke

Can I just guess that Freud had something to do with this?

Erin Welsh

Yes. On the dot, got it. Of course.

Erin Allmann Updyke

Aye aye aye.

Erin Welsh

Yes. Yeah, it's been called a quote "psychic conflict flying under a gynecologic flag." End quote. Gross.

Erin Allmann Updyke

It's awful.

Erin Welsh

Gross. Yeah. Okay so I'm going to read you a quote from Freud's colleague, Helene Deutsch. I also quoted her in our menopause episode. Quote: "Has her fear of the reproduction function proved stronger than her wish to be a mother? Is she still so much a child that she cannot emotionally and consciously decide to assume the responsible role of mother? Is she so much absorbed emotionally in other life tasks that she fears motherhood? And above all, has the sterile woman overcome the narcissistic mortification of her inferiority as a woman to such an extent that she is willing to give the child as object full maternal love?" End quote.

Erin Allmann Updyke

Oh the rage coursing through me. I'm sorry.

Erin Welsh

I know. I know. Yep, yep. Yeah.

Erin Allmann Updyke

Ugh. I don't even have... It's amazing that that was not very long ago.

Erin Welsh

Yes.

Erin Allmann Updyke

That was less than 100 years ago.

Erin Welsh

I mean less than 100 years ago. And then sort of like we've talked about, the time that it takes for something to leave this traditional... I mean Freud was so influential.

Erin Allmann Updyke

So influential. Like still to this day influential.

Erin Welsh

Yeah.

Erin Allmann Updyke

Yeah. And you can't separate that kind of thing out from all of the other ideas. Like sorry. Okay, this is not an episode about Freud.

Erin Welsh

I know.

Erin Allmann Updyke

Oof.

Erin Welsh

Maybe someday. I don't know. I don't know if I'm prepared to do that. But also people sometimes blamed infertility in men on their quote unquote "domineering and controlling mothers". So it was just like always... Just we're not surprised, just disappointed.

Erin Allmann Updyke

You can blame a mother for infertility. That's just like that's taking a cake right there.

Erin Welsh

I mean yep. Yep. Across the board though, I do think it's important to note that infertility for both men and women was and continues to be highly stigmatized and full of blame language. And there's no doubt that shame also silenced men writing about their fertility issues. A history of male infertility seems even more difficult to get a handle on in some degree. And although the psychogenic model of infertility fell out of favor in subsequent decades as we learned more about how human reproduction works, it still lingers in some ways. Like the advice that you will come across. Oh you're just too stressed, try to relax and then you'll get pregnant. Or you just don't want it enough. Maybe it's your body's way of saying this wasn't meant to be. All of these types of things have echoes of the psychogenic model.

But the more positive legacy is that the recognition that experiencing infertility and going through fertility treatments can have profound impacts on mental health, revealing a need for mental health professionals in fertility clinics not as gatekeepers for who is deserving of fertility treatment, which is kind of what they started out as in some degree, but as support. The 20th century, which I'll talk much more about next episode, dramatically changed not only the way that infertility was studied or treated but also the way it was experienced. Which I haven't really talked about in part because it's so big, it's so personal, it's not at all universal or generalisable. As our understanding of human reproduction grew and as technologies like IVF developed in the late 1970s, as these opened the door to new possibilities, infertility became something to overcome through science. But not for everyone.

Stigma, silence, or a lack of access prevent people from seeking treatments in the first place. And the treatments aren't always successful or the cause of the infertility remains unexplained. In some ways the improvements in reproductive technology have given us this illusion of complete control over our fertility. And many modern narratives of infertility tend to reinforce that control by highlighting stories where there's a beginning, a middle, and a happy ending, either through pregnancy and birth of an IVF baby or adoption or surrogacy or something similar, something that's like and then here is the happy ending that everyone expects. The stories of people in the middle of IVF or who have tried IVF but have not gotten pregnant or delivered a baby, these are less common stories which can add to the silence surrounding infertility, perpetuating the myth that fertility is a universal or universally desired experience.

The idea of having it all plays into this, suggesting that if you don't have kids, whether that's voluntary or involuntary, you're missing something, you can't have it all. We could do a whole episode on the problem with the phrase 'having it all', it's one of my like least liked phrases or 'doing it all'. But silence can also be protective, preventing intrusive questions or platitudes like 'maybe this is the way it's meant to be for you'. And these days with the advent of contraceptives that in general allow us to have more control over reproduction, we can better control our own narrative, whether we want to tell anyone or whether we want to keep it private. Sharing stories of infertility or hearing those stories can reawaken painful feelings or it can create a sense of community or both or neither or something else. There's no simple answer or universal experience and the same applies to the concept of infertility.

On the one hand, thinking about infertility in purely biomedical terms, as we often do these days, reduces this multidimensional experience to one aspect. But on the other, the understanding that we gained throughout the 20th century about the biological causes of infertility has helped to reduce the stigma and blame surrounding it, not globally but in many parts of the world. And it has allowed so many people to fulfill their dreams of having children. And so Erin, I'll now turn it over to you to tell us all what to expect if we go in for fertility testing.

Erin Allmann Updyke

Ooh, I cannot wait to. We'll take a quick break and then I'll get into it.

TPWKY

(transition theme)

Rachel

Hi, we're the Yetmans.

Brooke

I'm Brooke.

Rachel

And I'm Rachel. And we wanted to share parts of our IVF journey, the good, the bad, the ugly, with all of you. We started our journey in 2021. We decided that each of us would like to carry a biological child using the same donor sperm. I started the process first with IUI and after several attempts was unsuccessful. I then started the IVF process with follicle stimulation followed by the egg retrieval in February of 2022. I did a frozen instead of fresh transfer because of overstimulation during the retrieval process. In April of 2022 I had a successful embryo transfer and implantation followed by a healthy baby boy born in December of 2022.

Brooke

And now for the ugly part of the journey. I started my journey shortly after Rachel did. I had two egg retrievals because the first one only three embryos survive fertilization. After my first two embryos failed, I had an endometrial biopsy to test my progesterone window and test for endometriosis. For those of you that have never had one done, it's very painful, not a great experience at all. During this time, Rachel became pregnant and it was very difficult for me because she was able to become pregnant with the first transfer and I was continuing to have unsuccessful transfers. It was very taxing on our relationship and my mental health but we kept pushing on. By this time our son was born and it made all the insecurities I had about not being his birth parent disappear.

On my fourth transfer attempt I did become pregnant, however I started to bleed about two weeks after. I went in for an ultrasound and I found out I had a subchorionic hematoma that was bigger than the fetus itself. But there was still some hope because the fetus was still there and the bleeding had stopped. However when we went in for the heartbeat check, it wasn't there. It was literally heartbreaking. At that point I was debating on whether or not I wanted to keep trying but we made it further than we had previously so there was no indication that the next transfer wouldn't be successful. I tried one more time, it was my fifth and final transfer but that was also unsuccessful.

My next step would to shut down my entire immune system to see if that would help. So I had two choices, give up on having a biological child or see if my wife Rachel could get pregnant with my embryo. And after much discussion, we did a reciprocal IVF. Rachel would attempt to carry one of my embryos. The first attempt has resulted in a chemical pregnancy. The embryo started to implant and then detached for an unknown reason. It could have been a genetic issue with the embryo or the embryo quality itself but they weren't sure. So we did the same protocol and tried it again, which was successful.

Rachel

And I am now currently 25 weeks pregnant and due in August with our second son that is biologically Brooke's child.

Brooke

And I still struggle sometimes wishing that I could have been the one who carried our second son. But for some reason it wasn't meant to be. And the journey to our family wasn't an easy one but we can finally see the light at the end of the tunnel.

Anonymous

Our journey to IVF was one that we never expected. Having our first son unassisted and then being diagnosed with secondary infertility, five long years of trying and five missed miscarriages. We were always told it's just bad luck or it happens to everybody. But eventually you start looking for answers and science really was the only way that we could bring our miracle baby home. Through a 1.5 egg retrievals due to one canceled because of poor outcomes, COVID, closed clinics, moving our two precious tested embryos to a clinic five hours away, we finally reached a time where we were able to transfer our embryo and have our miracle baby. Without the science of IVF, my family would not be what it is today but it's not without shots, tears, blood work, ultrasounds, financial, emotional, and physical stress. And for anyone in the trenches, I'm forever grateful to have you by my side and I will always be there no matter what to root everybody on. IVF is not something that is easy or taken lightly but it is a chance to give us the dream of expanding our family.

TPWKY

(transition theme)

Erin Allmann Updyke

So Erin, you started off your section, and I love that sometimes we just work together so well, don't we?

Erin Welsh

All the time.

Erin Allmann Updyke

You started off your section talking about this idea of whether or not infertility is actually on the rise. And that's where I wanted to start too. And where I wanted to start was really looking into what you started with which is what is really the difference between fertility and infertility. And how do we use that those definitions when we're talking about how to treat infertility as a medical disease, if that's what we're calling it? So governments, all governments cite fertility rates. That's the data that we have. We have data on birth rates. And yes, birth rates have declined substantially. In the US for example in 1950, women had close to five children on average. And as a disclaimer, all of the language around fertility and infertility is so incredibly heteronormative.

Erin Welsh

Yes.

Erin Allmann Updyke

And so I use the term 'women' here because that is what all of the data cites and we do not have good data on the experience or the lived experience in transgender and gender diverse individuals, not to mention the fact that definitions of infertility don't even take into account people who are gay or anything like that. So I apologize in advance that that is the reality of the situation. But when I say women, talking about people with a uterus here. So on average women had five children in 1950. By 2022 the birth rate in the US is about 1.6 births per woman.

Erin Welsh

Okay.

Erin Allmann Updyke

So obviously that's a statistic. So that's a huge decline in the total fertility rate. And it's not just the US, the global fertility rate has more than halved from again close to 5, 4.8 in 1950 to 2.23 in 2021. But much of this decline is quite intentional and some of it is a very good thing. Because some of the statistics, when you look at what has been on the decline year over year is things like birth among those aged 15-19. Children, babies having babies has been on the decline. That's good.

Erin Welsh

Yep.

Erin Allmann Updyke

It's also the increase in the availability of contraception and the ability for people to decide to either delay or forgo altogether childbearing if that's what they decide and that wasn't always possible. So has this also led to an increase in infertility? In everything that I was reading, I didn't find any data to show that the things that we're going to talk about that cause infertility, the underlying things that can cause it to be difficult or close to impossible to conceive without medical intervention, don't seem to be on the rise. And what's interesting is that nowhere in the reports that I read about fertility statistics do they say that the infertility rate has increased. But that is absolutely the takeaway of a ton of websites and news articles that take data from these fertility statistics.

Now what is true is that the demands for assisted reproductive technologies including IVF have increased, though in some cases they've started to level off and in some countries they're still continuing to rise. But that still doesn't mean that we can conflate those two things, fertility and infertility. And I think that's one of the things that's really tricky when we in medicine, as we do in medicine, define and view infertility as a disease, as this medical phenomenon. Because some of this decline in fertility rates might be due to things like an overall increase in the age at first birth, which has been increasing. And we know that and I'll talk more about this, the age of your eggs specifically and also the age of the sperm are major driving forces behind what we conceptualize as infertility.

But it still all depends on what somebody's experience is of it. So anyways, let's get a little bit more into the details of how medicine defines infertility and what happens if somebody wants to become pregnant and hasn't. So you mentioned it at the top, Erin, the medical definition of infertility today, though it still depends a little bit on what society is writing it, per the WHO is the inability to achieve a pregnancy if that is desired after 12 months of regular unprotected sexual intercourse. Again, heteronormative as heck but that's where we are. This is a medical definition and per the World Health Organization and so many societies, it is seen as a disease of either the female or the male reproductive tract or both. And so that is the point, 12 months of unprotected sex without a pregnancy, that's usually the point at which an investigation into what the cause of infertility is would begin.

So a question that people often have, because it's a logical question, is like why 12 months? And in part it's because of just the odds. So if you look on large population scales, most sources estimate that conception rates in the first month of attempting to get pregnant are about 30%. So the first month, 30%. Then if we look out at six months, the cumulative conception rate at six months is about 75%. And then if you go to 12 months it's about 90% of couples that are trying to conceive will have conceived in 12 months. So that's the main way that we get there. What's interesting-

Erin Welsh

I have a question.

Erin Allmann Updyke

Do you have a question?

Erin Welsh

I do. Because I feel like it plays into this too. What is regular sex? Is there a definition by the WHO? Yeah.

Erin Allmann Updyke

I hoped that you were going to ask. Such a good question. Let me scroll down to the bottom where I have my fun facts section.

Erin Welsh

Oh nice.

Erin Allmann Updyke

How often do you have to have sex? Penis in the vagina sex has to happen ideally 1-2 times a week at a minimum to be considered regular.

Erin Welsh

Okay.

Erin Allmann Updyke

And what's also important is that the timing is actually really important because the egg only lives in the female reproductive tract for about 24 hours but the sperm lives for up to five days. So the fertile window really starts about six days before ovulation, peaks about two days before ovulation, and then is done essentially by the time that ovulation happens because the sperm also need time to swim all the way up to the fallopian tube.

Erin Welsh

Okay. Got it.

Erin Allmann Updyke

So that's also a lot if you are busy and trying to do this for a very long time. Just saying. Okay. So yes, that's what is considered regular enough sex. What's interesting about this timing of 12 months is that if you were to follow again on a population level couples who haven't conceived at that 12 months for another 12 months, 50% of those couples would conceive in that next 12 months, within two years. So the cumulative conception rate increases to about 95% at two years.

Erin Welsh

Okay.

Erin Allmann Updyke

Now this changes significantly with age, especially with the age of the person with the uterus or the woman. And we talked about this a little bit in our menopause episode. Those of us who ovulate are born with only a certain number of eggs and at some point in our reproductive lives, those eggs either are fewer and farther between or are of lower quality in a way that impacts the chances of pregnancy. In most of the medical community, this starts at around age 35. Realistically it starts to decline a little bit before that. But between ages 35-39, the spontaneous conception rate at that one year mark is actually only 60% compared to 90% if you're younger than 35. And at two years, it's 85%.

Erin Welsh

Okay.

Erin Allmann Updyke

Now male fertility also declines with age but it gets far less attention because we don't understand it as well and nobody talks about it. But for that reason, somebody who is 35 or older would often start, or it's recommended that they start this infertility of at six months of trying to conceive and not conceiving rather than waiting the whole year.

Erin Welsh

Okay.

Erin Allmann Updyke

So what does that actually look like? What can one expect if you are trying to get pregnant, you haven't gotten pregnant, and you go to your doctor's office for an infertility evaluation? Obviously this is going to look different in every single healthcare facility in every single country. But what I'm going to kind of focus on is what the very general evaluations are going to be, focusing on how we're going to try and pinpoint what a cause of this inability to conceive is and then get into what those causes are, and then what the options are for how we treat it. Because while we intended this as a study of just like IVF, IVF is not often the first step depending on what the underlying cause of that infertility is.

Erin Welsh

Yeah. I'm really curious about this decision tree process.

Erin Allmann Updyke

Yeah, it's really complicated but it's really interesting. So at that 12 month or 6 month mark, depending on your age, the initial doctor's office visits, this is probably going to be pretty boring, you're going to be answering a million questions about your personal life, about your medical history, etc. Most often, probably because of all the things you talked about, Erin, about the history of how we view infertility as a female problem, it's usually the female partner who shows up first to the doctor. But all of the literature says this should be an evaluation of the couple. It should never just be an evaluation of one partner if there's a two partner scenario, which in all of the texts that's the assumption. And then the next step that's going to happen after this kind of history gathering to see if there's any clues as to what the problem could be, there'll be a bunch of blood tests and probably some imaging studies for the female and a semen analysis and maybe some blood work, but honestly often not even blood work, for the male.

Erin Welsh

What would the blood work show?

Erin Allmann Updyke

Great question. So for women the blood work is going to assess a few different things, probably some measure of ovarian reserve. So you're going to be checking some hormone and there's a few different that people might check to assess your ovarian reserve. How many eggs do you have left? They'll also check other hormones to see if there's a reason that you might not be ovulating as much as we might expect or on as regular a basis. That goes along with some of the menstrual history that you're going to ask about what someone's cycles are like. And checking on things like thyroid hormone, prolactin hormone, these other things that if they're out of whack can contribute to ovulation issues. In the men, you could have similar things be checked but it's really going to depend on how far down the rabbit hole you end up going or if a cause is identified prior to that. The blood work for men is not as straightforward or as algorithmized I guess.

Erin Welsh

Okay.

Erin Allmann Updyke

As it is. Unless you find something and then you might chase it down, if that makes sense.

Erin Welsh

Yes. I had no idea that you could get a feel for ovarian reserve with a blood test.

Erin Allmann Updyke

Oh yeah.

Erin Welsh

Amazing.

Erin Allmann Updyke

Yeah, yeah. There's a few different things you can check.

Erin Welsh

Wow. Okay. Cool.

Erin Allmann Updyke

It's really important too. But anyway, I could go on, I won't. So then the imaging studies that you're going to get might be things like ultrasounds just to assess the structure of the uterus, see if there's things like fibroids or of cysts or something that could be contributing. They might also do what's called a hysterosalpingogram, which you mentioned a little bit, Erin, as well in one of your quotes. And this is quite a painful procedure from my understanding but it's very good for looking at the entire shape of the uterus itself and to see if there's any blockage of tubes or other abnormalities of the uterine cavity that could be contributing. And in some cases people might end up even undergoing exploratory surgeries depending on again what they find on all of these initial evaluations.

Erin Welsh

Interesting.

Erin Allmann Updyke

Again, for the men, you look at the sperm and you see how many there are, you see what the shape of them are, and you see how well they move. So you're also looking at things like motility. Now there might be more depending on what you find but that's kind of the first start and it gets you to a lot of these different causes of infertility. So let's get into what these are. If we look super broadly, like really, really broad, there's kind of three huge categories. It could be male factor infertility, it could be female factor infertility, could be both, and that happens, or it could be unexplained infertility, and we'll get there.

So at its core, if we're looking at male factor infertility first, at its core this is going to be an issue with sperm, either amount of sperm or the effectiveness of those sperm. So this could be an issue with spermatogenesis. So either you're not making enough sperm or you're making sperm that are morphologically abnormal in some way, either they can't move as well, they have some kind of DNA issue. There's a lot of possibilities. Issues with spermatogenesis are the most common but there's tons of other things that could be going on as well. You can have issues with sperm transport, either because of blockage or not being able to make it down the vas deferens to be ejaculated or because, like in our cystic fibrosis episode, we talked about just the absence of cilia being able to help the sperm be transported. And you can also have hormonal or endocrine disorders that affect sperm production. Those are kind of the three biggest categories that contribute to male factor infertility.

When we look at female factor infertility, the way that I think of it is it's most easy to split it up by like organ or area of the body. So you can have issues with your ovaries, either you have irregular or non ovulatory cycles. We see this in things like PCOS or other hormonal disruptions, maybe thyroid disorder or prolactin. Or issues with the ovaries from oocyte aging or depletion, either because the eggs themselves are of lesser quality because of age or there's just not as many eggs to be ovulated. But you can also have blockage of the fallopian tubes. And this is most commonly caused by things like pelvic inflammatory disease or severe endometriosis. You can then have problems with the uterus itself that might impair implantation. This could be structural things like fibroids or a septate uterus or-

Erin Welsh

Like me!

Erin Allmann Updyke

Yeah. Or an insufficient lining of the uterus. You can also have cervical factors either from previous trauma to the cervix or a reduced cervical mucus that impairs sperm transport. Then there's even more rare causes like autoimmune diseases. There is a very, very long list of possible causes. Then for both men and women you could have karyotype abnormalities, right.

Erin Welsh

Right.

Erin Allmann Updyke

You might have certain genetic disorders that just make it really difficult to either get pregnant in the first place or a cause of recurrent miscarriage could be karyotype abnormalities. That means abnormalities in your chromosome that are small enough that they usually don't affect you but it does affect the egg or the sperm that you're trying to produce. And then there's unexplained infertility which is exactly as dissatisfying as it sounds because what it means is that you have done all of this work up, you have gone through all of these tests, all of this blood work, and we didn't find anything and you're still not pregnant and you want to be.

Erin Welsh

I have a question about unexplained infertility. How has that term shrunk over time? Like how has it... Are there still things that we're exploring that like oh it could be this and it's just like finding the right tests or developing the right tests? You know what I mean?

Erin Allmann Updyke

Yeah, I do. I do. It's a really good question. I don't know is the short answer. Classic. But it's such an interesting question because from what I read, the thought behind unexplained infertility is that it isn't one thing, it's a bunch of little things that might contribute to relatively like a relative subfertility. And the idea of subfertility is something that I thought about writing a lot about and then I didn't because ooh boy. But anyway.

Erin Welsh

It's complicated.

Erin Allmann Updyke

It's a bunch of different things that might cause it to be a little bit harder or take a little bit longer to achieve a pregnancy but all combined together, right. So maybe you have slightly on the low side of a sperm count and maybe you have a slightly less receptive endometrium and maybe you have slightly hostile cervical mucus. Something like that.

Erin Welsh

Is that the term?

Erin Allmann Updyke

It's a term but I don't know that it's a good one. But right? Like maybe you have a little bit of a lot of things, right. Or maybe you have PCOS, so you're ovulating but not on a very regular cycle. And then your partner also has like a little bit of a low sperm count or something. But again, those, you would think that okay, well we've identified some causes, right? So that's why it's really I think frustrating is that there still is this unexplained infertility that in most estimates that I read accounts for anywhere from 10-20% of cases of infertility. Which is huge, right? And so like ah, I just can imagine, it's so painful, right?

Erin Welsh

Yeah.

Erin Allmann Updyke

To not have any answer.

Erin Welsh

Deeply frustrating and unsatisfying. And is that like a form, is there a point at which there's just like well we've done everything so it's unexplained infertility.

Erin Allmann Updyke

Yeah.

Erin Welsh

And then that's the diagnosis on the chart, whatever.

Erin Allmann Updyke

So it is definitely a diagnosis that gets put on a chart. The question of how much of a work up has been done before that is the label that gets put on is probably going to vary depending on where you are. So I can't answer the like what is that point?

Erin Welsh

Okay.

Erin Allmann Updyke

Because it's going to depend on where you are and what resources you have too, right. Because some of these tests are not exactly easy and you have to have access to a specialist to be able to do it. And so maybe there is for some people an answer but they just can't get it because they don't have access to what they need to get that answer.

Erin Welsh

Okay.

Erin Allmann Updyke

Yeah. It's a good question. But so once you've gone through all of this work up and maybe you have found a cause or maybe you haven't, the options for treatment that are available to you are going to depend on a lot of different things. They're going to depend in part on what if any identified cause of infertility there is and hopefully anything that was found that's correctable is corrected. And in some cases that might be all that you need, right. If there's a thyroid condition, then if you can correct that perhaps that's the only kind of thing that you would need and that wouldn't necessarily fall into medically assisted reproduction, MAR, or ART, and we'll get into that specific definition in a minute. But that couple would still meet the criteria for diagnosis of infertility which I think is important.

Erin Welsh

Okay. Yes.

Erin Allmann Updyke

But the other thing in addition to what the cause of infertility is in terms of what the next steps are going to be will very much depend on what your access is like and what your finances are like. And that's true here in the US but also everywhere. Access to all forms of assisted reproductive technologies is absolutely incredibly unequal because it's incredibly expensive everywhere, not just in the US. So what are some of these different options? One of the first is ovulation induction. And this is something that can be done with either oral medicines or sometimes injectable medications. And it's what it sounds like, it's inducing ovulation in someone who isn't ovulating or who's not ovulating on a regular schedule. And so this can be done with timed intercourse, so like using a medicine and then just having sex when you're like on the right schedule with this medicine. Or depending on the cause, it can also be done in combination with IUI or intrauterine insemination. Intrauterine insemination involves taking the sperm, washing it, because did you know that if you don't wash the sperm you're going to have a massive reaction to that unwashed sperm if you inject it straight into the uterus?

Erin Welsh

I did indeed because it plays a role in next episode in the history of development of IVF.

Erin Allmann Updyke

Oh my gosh, I can't wait. And it gave me such an appreciation for my cervical mucus I have to say. I was like wow, you're protecting me so well. Anyways. So intrauterine insemination is usually in combination with ovulation induction and that can use either a partner's sperm or it can use donor sperm. And so that is one of kind of often the first areas that you see this being able to be applied to more than just heterosexual couples is ovulation induction with IUI. And those are kind of the main options that we have and then we get into ART or assisted reproductive technology. ART is the broader term and I don't know if people say 'art' or 'A-R-T' but I'm gonna say 'art'.

Erin Welsh

Okay.

Erin Allmann Updyke

So this is a broad term that includes conventional IVF or in vitro fertilization, which we'll talk a lot about next episode.

Erin Welsh

Yep.

Erin Allmann Updyke

It also includes IVF with ICSI which is intracytoplasmic sperm injection. And it also includes some other acronyms like GIFT and ZIFT I think and some other things that most places don't do anymore but were kind of earlier versions of IVF.

Erin Welsh

Okay.

Erin Allmann Updyke

But in short, art means any process where we're taking eggs out of the body, we're taking sperm out of the body, and we're joining these up and growing an embryo outside of the body and then re-implanting it. And that, dear listeners, is going to be the subject of next week's episode. (trumpeting)

Erin Welsh

(trumpeting) Okay. So someone goes in, let's say a couple goes in for fertility testing, go through all of these different processes, let's say that they do this and that. What are the different characteristics of the couple, like age or whatever? When go IUI? When go IVF? When do you do all these different ICSI? Like when? What? Why?

Erin Allmann Updyke

Yeah.

Erin Welsh

Decisions.

Erin Allmann Updyke

When? Why? What? How?

Erin Welsh

Yes, all of those.

Erin Allmann Updyke

Yeah, it's a good question. So sometimes IVF might be the first thing that you go to.

Erin Welsh

Okay.

Erin Allmann Updyke

IVF might be first line therapy in cases like for example if there's bilateral tubal occlusion, right. So if your both fallopian tubes, you go through this workup and you find out that both of your fallopian tubes are completely blocked, then it's either IVF or a surgery to try and reconstruct those tubes, right. So IVF might be the first line in that case. A time when IVF might not be the first line would be if somebody has something like PCOS for example, then you might reasonably try ovulation induction, either alone or with IUI. And the decision there really just depends on the couple, it depends on the situation, so it's not like a black and white there, it's very much a gray area.

And there are kind of a lot of other cases where you might try other things. Unexplained infertility, generally the recommendation is to start with ovulation induction and IUI combined, the thought again being that if there's multiple things that are all contributing to cause this relative subfertility, then if we can induce ovulation and put the sperm right at the top of the uterus at the right time, then we have maybe the highest chance of success before we jump to something as expensive and time consuming as IVF. IVF with ICSI, with that intracytoplasmic sperm injection, is first line for severe male factor infertility because in many cases with severe male factor, that's the only way that you're going to have a successful pregnancy.

And depending on the age of the couple, especially the age of the woman, it may be that the recommendation is to go straight to IVF, also depending on how long they've been trying for. So it's also the case that if a couple has been trying for greater than two years or greater than three years, regardless of what you find as the cause, it's possible that someone would recommend IVF as the first just because statistically there's such a small chance of the other options being as effective like per cycle. And similarly if the age of the female is greater than 35 or definitely greater than 39. But it all is just kind of depends a little bit on each individual circumstance.

Erin Welsh

Right, okay. Okay.

Erin Allmann Updyke

And finally, of course IVF would also be first line if the underlying issue isn't this medical definition of infertility that we have defined but what is called social infertility, right. If you are a lesbian couple trying to get pregnant, IVF is often though not always because ovulation induction plus IUI could also be an option, but often IVF is one of the first steps for things like that or for a single mom who wants to get pregnant. Also for somebody who has a genetic condition that they want to ensure doesn't get passed down to their children. And we mentioned this briefly in our Huntington's episode but this is also relevant for people or couples who are carriers of things like sickle cell or cystic fibrosis. IVF can often be first line for that and it is used in combination with things that we'll talk about later and that is preimplantation genetic testing for these specific disorders. So there's a very wide range.

Erin Welsh

Yeah, I think it's interesting what IVF started out in terms of like okay, who is going to be using IVF? And then how that evolved over the decades afterwards, which is it's kind of amazing. As the technology changed, as regulations changed and so on, which we'll get into more of that. But I do have more questions. So one of the questions is so you have mentioned fertility rates globally and in the US. What are infertility rates and how are those measured on a global scale? What numbers go into that?

Erin Allmann Updyke

Great question. I'll talk about this a lot more in our last episode of this series but let's at least mention it. Globally it's estimated that 1/6 couples worldwide experience infertility at some point in their reproductive lives.

Erin Welsh

Okay.

Erin Allmann Updyke

Of course this only includes this medical definition of infertility.

Erin Welsh

Right. Okay.

Erin Allmann Updyke

So globally that's looking at like 50 million or more couples. It's a huge number.

Erin Welsh

Yeah, it's huge. Okay. Interesting. I have a question that's like you talked about how this is what to expect if you go in for fertility testing. What is like even before that? Let's say that you're trying for a year to become pregnant, not getting pregnant. Who do you... Do you go to your primary care and then you get a referral to a fertility...? Like who is the person you ultimately see?

Erin Allmann Updyke

That is such a good question because I have a lot of personal feelings about it that aren't that relevant. But it is going to depend so much on where you live and who you have access to and who your doctor is. Because the first steps of this infertility workup, and even like what I would also say is so important that gets overlooked is like preconception counseling if people want to get pregnant, like understanding that you are most fertile in those six days prior to ovulation and like the timing of intercourse. We don't get taught that in high school biology class, right? We're so focused for so much time on not getting pregnant, often, not always.

But so even that, most of this initial work up is very reasonable to be done by most general practitioners, what they're called in most places. That being said, not all physicians are trained in women's health equally or in like reproductive health in general. Because again, we have to look at both women's and men's health. And so it's very possible that some like GP type physicians wouldn't feel comfortable initiating that depending on where you are, depending on what you have access to. So then you might be referred to an OB/GYN who might focus just on again the female reproductive tract. So it's part of the kind of issue with people getting access to the right kinds of care is that yes, most of this evaluation can reasonably be started at least in like a general practitioner's office if they feel comfortable with it.

Erin Welsh

Interesting. Okay. I feel like, Erin, I feel like there's like 1000 more questions that I have that are just kind of lingering in my head, just dancing around, but I don't know what they are. But I guess this is why we're doing multiple episodes so that I can think back and then ask these again.

Erin Allmann Updyke

Exactly.

Erin Welsh

Ask these questions.

Erin Allmann Updyke This is why we're just gonna keep talking.

Erin Welsh We're just going to keep talking forever. But we should probably wrap up this episode now. Okay.

Erin Allmann Updyke I think so.

Erin Welsh Okay.

Erin Allmann Updyke I am really excited for next week to get into what the heck is IVF and how did we come up with it and how does it exist today?

Erin Welsh Yes, I am excited for that. But we should do the sources for this episode first. Okay.

Erin Allmann Updyke Absolutely.

Erin Welsh I have a few but I want to give a second shout out to that incredible book that I've mentioned a few times now; second, third, fourth shout out. 'The Palgrave Handbook of Infertility and History' edited by Gayle Davis and Tracey Loughran, which that was just a great, was a really interesting resource and had so much like very commentary and scholarly research on the subject that was sort of all over the place but also really comprehensive.

Erin Allmann Updyke I have to admit that my sources for these three episodes are a mess of being very mixed up. Fair warning. But for this episode, a few papers that I would like to especially shout out that I found really interesting. One was kind of an old paper now called 'The ABCs of Subfertility', so interesting, 'Extent of the Problem', it had a lot of detail in there about infertility as well. The World Health Organization fact sheet on infertility as well as a textbook on reproductive medicine. And we will post all of the sources from this episode and all of our episodes and the next episodes on our website thispodcastwillkillyou.com under the EPISODES tab.

Erin Welsh A huge thank you again to everyone who has shared their firsthand accounts with us and who have just like really... It's been incredible, an incredible privilege, like you said, Erin, to be able to read these, hear these stories. Thank you. Thank you.

Erin Allmann Updyke Yeah, we really, really appreciate it. It's so meaningful. Thank you.

Erin Welsh It is, it is. Thank you also to Bloodmobile for providing the music for this episode and all of our episodes.

Erin Allmann Updyke Thank you to Tom Breyfogle and Lianna Squillace for the incredible audio mixing.

Erin Welsh Thank you to Exactly Right.

Erin Allmann Updyke And thank you to you, listeners. The first of three episodes. There's so much more to come but thank you for sticking this one out.

Erin Welsh Yeah, let us know what you think. And a special thank you of course to our amazing, generous patrons. I mean we really can't say it enough, thank you. Your support means the world. Until next time, wash your hands.

Erin Allmann Updyke You filthy animals.