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Welcome to Wisdom & Wellness

Dr. Carole Kowalczyk is medical director of the Michigan Center for Fertility & Women’s Health. She is a board-certified reproductive endocrinologist and specializes in making family dreams come true. She is also the publisher of Wisdom & Wellness, a fertility and health guide.

With the “busyness” of every day life – work, school, kids, relationships – many times finding the right balance is challenging. Staying healthy and taking care of our self is now more important than ever. But how do we fit it all in, and exactly what do we need to do to get there?

Welcome to the first edition of Wisdom & Wellness!

As someone trying to juggle as well, I wanted to publish a concise, fun read that gives helpful pearls of knowledge to keep on top of it all. This magazine will cover health topics for men and women, young and old, with up-to-date information from leading, local experts. We will also go beyond health; future issues will cover topics such as nutrition, fitness, beauty, investments and finance, entertainment and local news, providing wisdom to make the right choices in your life.

In honor of April’s infertility awareness week, the first issue is focused on fertility education. Did you know that infertility is a medical condition, just like diabetes or hypertension? It affects 1 in 8 couples and only 6% of infertility patients seek treatment. My passion, as well as the passion of my team at the Michigan Center for Fertility & Women’s Health (MCFWH) has been to make infertility a little less scary and more hopeful. The female workup can be accomplished in one month and in over 85-90% of cases, we can identify the problem and appropriate treatment options can be made. With all of the advances in fertility, it is an exciting time to help couples make their family dreams come true.

In this fertility issue, you will learn about ovarian reserve, male infertility and how nutrition and mind-body care, like acupuncture and counseling, enhances fertile success. We also explore new fertility advances like egg freezing and INVOcell.

I’m excited to share with you this new addition to MCFWH. We hope you enjoy reading it as much as we enjoyed creating it.

Wishing you wisdom and wellness!

Carole Kowalczyk, M.D.

When IVF is Not an Option

The fertility workup has been done and a treatment plan has been made. The results suggest in vitro fertilization (IVF) would be best. There is only one problem … traditional IVF is not an option for you.

For many couples, IVF is not possible for a variety of reasons. Most commonly, the cost of IVF is prohibitive. With all that is required, including supplies, medications and medical expertise, the average cost can range between $15,000 and $18,000. Many insurance companies might help with the cost of monitoring and medications, but few plans cover all of the medical procedures. Many couples rely on personal savings, loans or help from families.

Another obstacle may be religious or ethical beliefs. The Catholic faith, for example, has difficulty with the fertilization of eggs with sperm in a laboratory setting. For couples requiring this option due to suboptimal egg quality, continued on page 11

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Infertility is an equal opportunity diagnosis whose causes are apportioned, women 40%, men 40%, and for 20% of couples, both partners contribute.

Although in the minds of Henry VIII, and men in some cultures, that there is no such thing as “male infertility”, I and medical science disagree. A knowledgeable colleague confided, “It can’t be me: I got someone pregnant in high school.” As I outlined the investigation plan for a different couple, the husband said, “Doc, it isn’t me: I’m a stallion in the bedroom and produce a quart of stuff.” Illness and lifestyle can take a quiet toll between 17 and 31 years-of-age. Erections are about hormones and blood flow, not sperm cell production. Ninety-five (95) percent of the ejaculate is support secretions from the seminal vesicles and prostate glands, not sperms.

Lifestyle can contribute to reduced sperm production. Men who smoke > 20 cigarettes (1 pack) per day and men who drink more than two alcoholic beverages per day have a reduced sperm count compared to non-users. Active and passive smoke exposure are equally bad, and thus the partners of smokers have decreased fertility, increased miscarriages, and higher risk for ectopic (tubal) pregnancy. Overweight men have a two-fold increase in fertility problems and a three-fold increase in erectile dysfunction compared to normal BMI (body mass index) men. Welding fumes may contain manganese, chromium, cadmium, and nickel which are thought to cause decreased fertility in these workers. Sperm counts vary across the seasons with the highest sperm concentration during the fall/winter months and lower numbers per milliliter in the summer: perhaps “New Years’ babies” are more than hats, horns, bubbly, and no condom.

Before Viagra, testosterone was the commonly-prescribed therapy for erectile dysfunction (along with body building). While it is true that testosterone is required for sperm production (spermatogenesis), it is the produced testosterone shared cell-to-cell inside the testicles that is required. Exogenous (from outside the body) testosterone turns off local production and sperm development stops. Marijuana has a reputation for enhancing the sexual experience; however, the Masters and Johnson Institute reported breaks in the DNA (fragmentation of the genetic messages) of sperm from men smoking the weed > three times per week. Cocaine and codeine, a commonly prescribed analgesic (pain medication), also impair sperm motility and ability to penetrate into the egg. Prescribed medications also can impair fertility: beta-blockers and calcium channel blockers for hypertension; SSRIs (selective serotonin re-uptake inhibitors) for depression; colchicine/allopurinol (gout); nitrofurantoin (urinary antiseptic); and sulfasalazine (primary bowel disease).

The good news in this story is that much of male infertility is manageable. Simple [easy for you to say Doc] fixes are lifestyle and medication changes to maximize semen production for mid-cycle coitus to effect egg fertilization. Boxers rather than briefs is a long-standing, although unproven recommendation. However, avoidance of hot tubs, saunas, and laptop heat all can improve sperm analysis values. Vitamins containing Vitamin C 1000 mg daily, Vitamin E 200 IU daily, Vitamin D 2000 IU daily, Zinc 30 mg daily (maximum), plus CoQ10 600 mg daily are supplements recom-
mended alone and in combination by urologists specializing in male fertility. Stimulated spermatogenesis using letrozole (Femara®) or hCG (human chorionic gonadotropins) may permit timed intercourse or IUI (artificial insemination into the uterus after selection of the best moving sperms in the ejaculate) rather than IVF (in vitro fertilization) with intra-cytoplasmic sperm injection, the ultimate procedure to offer couples high-likelihood hope for pregnancy. Other long-standing treatments (varicocelectomy) have not shown benefit measured as babies born.

In summary, infertility is a couple issue: it does indeed require two to tango. Infertility is not about masculinity, sexual prowess, or ability to parent. Male infertility is a medical diagnosis with treatment options that offer good outlook to have the family you seek.

RONALD STRICKLER, M.D. is a board-certified reproductive endocrinologist who trains and educates medical students, residents and fellows who rotate through MCFWH.

Brightening Family Dreams

Worldwide, acupuncture has been revolutionized by the introduction of cutting-edge light treatments using a low-level laser in place of acupuncture needles to treat acupuncture points.

Did you know that infertility affects 10 to 15% of couples trying to conceive? And that in most cases the cause can be identified and cured? No longer do you need to withstand needle pokes when the simple painless application of light to acupuncture points can be just as beneficial. While acupuncture has been around for thousands of years, it has been in the last decade that acupuncture has become well known for its benefits for fertility. Traditionally acupuncture treatment has consisted of the application of tiny sterile needles to specific acupuncture points around the body. These acupuncture points regulate the flow of Qi (energy) in the body to promote homeostasis. The new advanced laser acupuncture is an innovative technique that uses low-energy lasers in place of needles to stimulate traditional acupuncture points. This type of laser acupuncture has proven to be as effective as needle acupuncture and even more effective for some conditions. The technique is also called “cold” or “soft” laser therapy because the low levels of light are completely safe and not strong enough to heat the body’s tissue.

Today, more women and couples are seeking a holistic approach to fertility treatment that takes into account the mind-body connection. Not only is acupuncture valued for its stress-relieving and relaxing benefits, but also as a complement to traditional fertility medicine by promoting blood circulation and ovarian function.

A scientific study published in a highly regarded fertility journal, Fertility and Sterility, found that laser acupuncture performed both before and after an embryo transfer during an in vitro fertilization (IVF) cycle improves a woman’s chance of implantation by up to 15%. The same study also showed significant improvement in implantation rates compared to traditional needle acupuncture.

The FDA has approved laser acupuncture as a safe and non-invasive treatment. There are no known side effects, so why not maximize your chances of pregnancy success and ease your stress and anxiety during the IVF process with our scientifically-based laser acupuncture treatments?

RHONDA SOUSLEY, PhD is director of acupuncture at in Harmony Spa & Wellness Center. With over 20 years of experience she supports couples struggling with infertility.
The fertility journey is one that many patients and couples never intended to be on. As one of my patients explained, “It’s like a secret club that I never asked to belong to, and can’t seem to get out of on my own.” As we have seen the stigma of silence surrounding infertility take a different shape with education and awareness, we have also seen a movement of increased emotional support that our patients deserve during this season of life. In my role as a support counselor, I wear quite a few hats - helping our patients become educated and knowledgeable about their options; develop and reconcile realistic expectations; support their marriage and partnership as it bears the weight of this diagnosis; instill hope; develop self-care and coping skills; work to reduce anxiety and depression and of course grieve. There is no shortage to the intense emotional impact a patient can feel. As a point of support, I contain the space for them to feel as raw as they need, so they can process, fan their perseverance, and keep moving towards their dream of bringing their child home.

Alice Domar, one of the leading psychologists in reproductive assistance reported that recent literature shows that the paramount reason patients drop out of treatment is not the mounting financial obstacles that fertility treatments can hold, rather the “emotional cost” that at some point feels too much. It is my whole joy to support our patients in this experience, which can feel all too isolating, and help them create a web of coping strategies and support measures to keep their reservoir of hope to a level that they can continue to grieve and move forward concurrently, which is a rare skill.

Let’s go through some of those ways to keep your self above water.

**BOUNDARIES**

One of the most difficult things for those going through infertility treatments feel is the dissonance of emotional boundaries. They feel sad, devastated, resentful, and even angry that this is an experience that doesn’t seem to discriminate fairly. They watch people who didn’t plan or want a pregnancy achieve one with ease, they watch others who are not as well equipped emotionally to welcome a child, or see media glorify celebrities who are having children past 40 seemingly with no intervention. They are met with well-intended comments such as “You just need to relax and it will happen,” or “Why don’t you just adopt?” as if that was a simple process. Social Media has particularly been a triggering additive, as on any given day, there can be an ultrasound photo, a pregnancy announcement, or gender reveal that while others just scroll past, leaves them feeling gutted.

These emotions are the collateral damage of a medical condition that pulls every ounce of control. It is so important that you feel the right to place boundaries right now. You can say ‘No’ in ways that are graceful but preserving to commitments and people that will trigger you. You can opt out of celebrations and birthdays that will leave you impacted far after the party has ended. There will always be more to attend. You can put down the need to be everything to everyone, in a season where your self-care is absolutely paramount. Take an inventory of who and what bring you peace right now, and plug yourself into those with liberty. Stop worrying about if people will...
think you are distant, or not happy for them etc., as in most cases, our fears of what people think of us is rarely true. It’s OK to be self-focused; it is often one of the few things we have control of.

**LEARN YOUR LANES**

Something I often find is that patient’s anxiety is high when they are receiving calls saying a cycle did not work because they don’t know the options that lie ahead of them. When it feels like the road is simple and short ahead of us, we can feel like the stakes for each month are all-too-high. This erodes our well-being quickly. Don’t hesitate to look ahead through research, your counselor, your nurses and physician to find out the different protocols, procedures and treatments that can help widen your perspective and increase your hope. There are many lanes in infertility, and we can cross over when the time is right.

**COMMUNICATION WITH YOUR SUPPORT NETWORK**

In this journey, you will find that people you never expected will become incredible supports for you. Conversely, you may also find that those closest to you may not be able to support you in the ways that feel the most meaningful. This is normal. When we love someone, we often try to take their pain and make it go away. This can feel challenging when you open up, and a close friend or family member tells you “You worry too much about this!” or “Be grateful for what you have.” It comes from an intent to shield you, but it feels minimizing and diminishing.

Yet in the community of Fertility, there are many of us who are not afraid of the heavy feelings. From support groups, individual and couples counseling, online forums, and more … there are people out there who know what you are feeling, and are in no hurry to move you along, rather they will sit in that space with you until you feel ok. Find your tribe, and nurture it. This can feel isolating, but you are not alone. A good place to start is www.resolve.org

**HEART AND BODY**

In a way, the grieving process that the fertility journey reflects closely to is that of death. When someone we love dies, we have the initial impact and shock, and then life begins to move forward with “swells” of grief that hit us indiscriminately, often when we least expect it. Patients receiving treatments for infertility describe an intense grieving experience as well. That this is not what they expected, and not supposed to be like this. They feel broken, cheated, and many experience a crisis of faith. It’s important that you continue to process your grieving as it comes, so you can fill that space with perspective and strength. If we are constantly trying to act like we are ok, we start to push our grief into these pockets that bubble up in other ways… conflict with our spouse, insomnia, anxiety, isolation, reduced immune systems, etc. Welcome your grief, and don’t be afraid of it. It’s valid and the more you share your story, it loses its sting a bit.

Alternately, as we take care of our heart in all of this, your body also needs care to help offset the emotional and physical aspects of your treatment. Very simple, basic needs tend to be pushed aside, when those often make the most impact. Make sure you hydrate and eat nutritiously, and regularly get outside in the fresh air and sun. Carve out time for movement to help your body process that emotional energy. Sleep and rest, so your body has time to refuel. This is a marathon, not a sprint, and you need to train and care for your body in that same mentality.

Honoring yourself and your strength in this experience is so important. You can do this. Take one day at a time, and above all, remember there is always hope.

CLAIRE HOGAN, MA, LPC, NCC is a licensed professional counselor who provides guidance to couples suffering from infertility.
Empowering Women on their Journey to Health

Imagine sitting in an office being told your dreams of starting a family are going to be more challenging than you anticipated. How would you feel if after years of unexplained symptoms and weight gain you were finally given a diagnosis? For most women, hearing this information can be overwhelming and defeating. Everyday women experience these thoughts and feelings while trying to start a family or manage their weight and menstruation.

In a culture where a women’s worth is often linked to their ability to have children, receiving news that it may not happen how they had planned, can feel overwhelming. However, learning about services available to them can be empowering. The control that women can take back by taking advantage of these services can increase feelings of empowerment. I am humbled and honored to have the opportunity to work with these amazing individuals. My goal is to empower each person I have the opportunity to come in contact with. Women who have access to other services beside hormonal treatment increase their likelihood of conceiving. Services like acupuncture, nutritional consultation, exercise, and mental health services increase a women’s likelihood of conceiving.

For almost a decade I have had the opportunity to work with various types of women wishing to become mothers. Hopeful mothers all have the same desire, but yet their challenges are unique to them. The common thread in all my experience is individualization. Women have similar health concerns, but the reason for those health conditions are very different. One woman may be struggling with PCOS, which impacts her ability to conceive. While another woman is struggling with obesity, also making conception more challenging. Yes, each one is battling infertility, however, the conditions impacting their fertility will change how each woman deals with their treatment.

Customization is key to a patient’s success. In today’s society most women are juggling work, household duties, family, and friends. According to the Bureau of Labor Statistics, 83% of women perform household duties daily and 47% of women work outside of the home. The added pressures and responsibilities can make eating healthy, exercising, and self care very challenging.

Infertility can feel very hopeless. We not only need to give our patients the facts, but we need to give them a sense of empowerment. Women can often feel at fault or to blame for infertility. We need to share with these women all the ways they can take back control. We must empower them to take control of the areas they are able to, such as proper nutrition and regular physical activity. Research has shown eating a diet low in processed foods and sugars, and high in fruits, vegetables and lean proteins can increase a women’s likelihood of conceiving. Studies have also shown reducing stress through meditation and acupuncture can lead to increased fertility. Encouraging and motivating women to take action in a time where inaction can be easier is our responsibility. Being healthy does not have to be difficult, but it is not always easy.

As professionals in the medical field or health and wellness industry, I believe it is our responsibility to give those we treat the proper resources to help them achieve their goals. What each person needs is not a cookie cutter answer. I believe we owe it to our patients to design a plan that will work for them. They should not have to fit into our mold, but instead we should want to fit into their world. Each person is different. Each person has a unique story to tell and we must take the time to listen to that story. If we only give them our minds and not our hearts, we will fail them. Fertility is neither a simple question, nor a simple answer. We must honor this complexity by looking at all facets of the beautiful body - the mental, physical, and emotional components.

ADRIENNE M. MONTGOMERY holds a BS in Kinesiology and is dedicated to contributing to the well being of clients by empowering them to live physically active and healthy lifestyles.
Having worked in fertility for seven years and being a patient myself, I have seen and personally experienced a wide range of levels of understanding when it comes to the topic of age and fertility. It is a topic I have grown particularly passionate about after not only coming across many patients over the years who wish they had been more “aware” or “educated”, but also due to the trend in today’s society where many women choose to delay child-bearing due to work, education, family obligations, and a variety of other reasons.

Despite women taking better care of themselves, these improvements do not stop or delay the natural age-related decline in fertility. The decline that occurs in both the quality and quantity of eggs happens sooner than most realize, leading to surprise, distress, and at times anger over the lack of education provided to the general population. It is important for women to understand the correlation between age and fertility, and to be aware that there are options for preserving fertility if one so desires.

The decline in fertility with age is a normal process, although the rate of progression may vary widely, it inevitably happens to all women. In comparison to men who continue to make sperm throughout their lives, women are born with their total supply of egg-containing follicles they will have in their lifetime. The decline begins early with about 1 million follicles at birth and roughly 300,000 at puberty, with only about 300 of the remaining 300,000 ovulating over the course of women’s reproductive years.

In general, our best reproductive years are in our 20’s, with a gradual decline beginning in our 30’s. A healthy and fertile 30 year old has roughly a 20% chance of pregnancy each month. At age 40 this chance drops to less than 5% each month. This decline has to do with decrease in both the quality and quantity of our eggs. Age tends to be the most appropriate “test” of egg quality given there is not specific blood test or procedure that can tell us about the quality of our eggs in advance. With age there is also an increase in miscarriage risk, chromosomal abnormalities, and the possible need for more aggressive fertility treatment.

Education is key in regards to age and fertility. Everyone has a unique and personal situation that helps determine when is the “right” time to consider starting their family. There is no right or wrong. Some women aren’t quite sure when that time is, while others have a distinct plan in place. Being aware of age related changes helps women and their families consider all options, plan ahead, and be prepared for what may or may not occur in regards to their future fertility potential.

Options such as elective egg or embryo freezing may or may not be of interest to individuals who desire delaying childbearing, or for those who just aren’t quite sure when the right time to start a family is. For more information on these topics we suggest individuals set up a consult at a fertility center, speak to their OBGYN, or utilize information from resources such as American Society of Reproductive Medicine and other reputable resources.

ALEXA KARBOWSKI PA-C is a physician assistant at the MCFWH.
She works closely with Dr. Carole Kowalczyk managing patient care.
Egg Freezing in Women Who Delay Childbearing

As more women delay childbearing, many worry they will be unable to conceive when they are ready to start a family. It may seem surprising to learn that, on average, a woman has only a 15-20% chance of pregnancy each month. For women in their 20s, the chance of pregnancy within one year is 78-86%, but this decreases to 52% for women 35-39. Pregnancy becomes much less likely after age 40. Oocyte (egg) freezing offers an option for women who want more options for future family building.

**WHAT IS EGG FREEZING?**

Egg freezing (oocyte cryopreservation) is a process in which a woman’s eggs are removed, frozen and stored as a way to preserve reproductive potential.

**WHO SHOULD CONSIDER EGG FREEZING?**

Egg freezing can be considered for a variety of reasons:
— Fertility preservation for social or personal reasons.
— Prior or planned surgery on the ovaries that may affect remaining egg number/ovarian reserve such as cystectomy, or prophylactic oophorectomy (ovary removal)
— Risk of early menopause due to chromosomal abnormalities (e.g. Turner syndrome, fragile X syndrome) or family history of early menopause.

**HOW DOES THE EGG FREEZING PROCESS WORK?**

First, blood and ultrasound testing are done by a fertility specialist to determine the number of remaining eggs in the ovaries. We know women are born with a certain number of eggs, and these egg numbers decrease throughout her lifetime. Ovarian reserve testing gives information on the type and dose of medicines to use to grow and harvest the eggs.

Next a group of eggs in the ovaries is stimulated to grow, using daily doses of medications given for 10-14 days. Monitoring is done during ovarian stimulation with blood and ultrasound testing to assess the growth of the eggs. When the eggs are ready, they are retrieved or harvested in a mini surgery.

Not every egg that is retrieved is mature or able to be fertilized. Only mature eggs are frozen for future use. Freezing is done via vitrification, a quick freezing process using liquid nitrogen.

**HOW ARE THE EGGS USED IN THE FUTURE?**

When a woman is ready to try for pregnancy, frozen eggs are thawed. Approximately 75% of eggs will survive the freezing and thawing cycle. The eggs that survived the freezing process are fertilized, and the fertilized eggs or embryos are grown for 3-5 days until the embryo(s) are ready to be transferred into the uterus. Not every egg will fertilize, and not every embryo will grow. For this reason, the more eggs that are frozen, the better the chance of pregnancy and live birth.

**WHAT ARE THE CHANCES OF A SUCCESSFUL PREGNANCY USING PREVIOUSLY FROZEN EGGS?**

Egg freezing is a relatively new process, so data is limited. The chance of becoming pregnant and having a fetal heartbeat on ultrasound after embryo transfer have been estimated between 4-12% per oocyte. The two most important factors in determining the probability of a live birth are the woman’s age at the time of egg freezing and the number of available eggs. The younger the woman is at time of egg freezing and the more eggs that are frozen, the better the chance of having a live birth.
**ARE THERE EFFECTS ON THE CHILDREN CONCEIVED FROM PREVIOUSLY FROZEN EGGS?**

Available data comparing births conceived from previously frozen eggs with those from fresh eggs from IVF have not shown an increased risk of congenital anomalies. More long-term data, however, is needed to better assess these risks.

**WHAT ARE THE RISKS ASSOCIATED WITH THE OOCYTE CRYOPRESERVATION PROCEDURE?**

Risks are similar to those for women undergoing IVF, which include the chance of ovarian hyperstimulation (ovarian enlargement and fluid accumulation in the abdomen), infection, injury to ovaries and adjacent structures during retrieval. These events occur in <1% of women.

**HOW LONG CAN THE EGGS BE STORED?**

Because egg freezing is a relatively new process, long-term data are limited. Current data shows that freezing eggs up to four years does not affect their quality. However, longer-term studies on the effect of freezing are still needed. We do know that the longer a woman waits to try to use the eggs can impact the health of the pregnancy. Women who are older when they conceive have increased risks of certain pregnancy-related conditions, such as diabetes and pregnancy-induced hypertension. Additionally, each clinic will have limits on the age at which they would transfer an embryo. Usually, these are around 50 years of age, as long as the woman is otherwise healthy enough to carry a pregnancy.

To learn more about egg freezing, call to schedule a consultation with one of our fertility specialists.

**NICOLE BUDRYS, M.D.**

is a board-certified reproductive endocrinologist. She oversees patient care at MCFWH’s Lake Orion and Plymouth fertility clinics.

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**Recipes for Growing Families**

We all know that a healthy diet is important when you are trying to get pregnant, but the fact is certain foods can actually help boost your fertility. Choosing the right proteins, fats, vitamins and minerals can help regulate ovulation, balance hormone levels, and maintain insulin resistance, which is important for those with PCOS, a leading cause of infertility.

Below is one of just many recipes to help you get pregnant. It comes from *Cooking to Conceive*.

**FLUFFY BUCKWHEAT PANCAKES**

Nutty buckwheat flour has been associated with reduced insulin resistance and increased ovulation in women with PCOS. Serve with fresh fruit or nuts - figs, berries, almonds - and real maple syrup.

**INGREDIENTS**

— 1 cup all-purpose flour
— 1 cup buckwheat flour
— 1 teaspoon baking powder
— ½ teaspoon baking soda
— ¼ teaspoon salt
— 3 large eggs separated
— 1 ¼ cup buttermilk
— 1 tablespoon canola oil, plus more for oiling pan
— 1/8 teaspoon cream of tartar

**DIRECTIONS**

1. Stir together flours, baking powder and soda, and salt. In separate bowl beat egg yolks, buttermilk and 1 tablespoon of oil. Stir buttermilk mixture into flour mixture until evenly moistened.
2. In a separate bowl using a mixer on high speed, whip the egg whites with cream of tartar until soft peaks form. Fold gently into the batter until no white streaks remain.
3. Heat a nonstick fry pan over medium heat. Coat the pan lightly with oil. Working in batches spoon batter into the pan and cook until pancakes are browned on the bottom and a few bubbles have popped on the surface, about 2 minutes. Flip the pancakes and cook until the other side is browned. Repeat to make remaining pancakes.

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When IVF is Not an Option (continued)

**continued from page2:** sperm integrity or tubal issues, IVF may be “off the table.” And there may be concerns over freezing embryos left over. Historically, for these patients, the Michigan Center for Fertility & Women’s Health (MCFWH) has offered the option of only fertilizing one to three eggs and freezing the rest for possible future use. The positive side is there would most likely be no “leftover” embryos to freeze. The downside would be no fertilization at all. Not every egg is mature enough to fertilize; not every mature egg fertilizes; not every embryo survives to the day of embryo transfer. Therefore, if the one to three eggs do not result in the desired embryo, the frozen eggs can be thawed to try again. The problem: eggs are more fragile than embryos and 30% of the time will not survive.

So is there another solution? Possibly yes in INVOcell.

INVOcell is a novel approach in advanced reproductive technology and we at MCFWH are currently the only center in Michigan to offer it. While it does require the woman to undergo fertility injections, monitoring and egg retrieval, it is a less involved process. Up to approximately seven eggs are placed in a clear, sterile retention device with an appropriate amount of sperm. This device is secured in an outer chamber, then placed in a diaphragm. The device with sperm, eggs and diaphragm are placed in the woman’s vagina and she acts as her own “incubator” for five days. On embryo transfer day, the diaphragm is removed and the device is given to the embryologist to determine if embryos have developed. If so, an embryo transfer is performed immediately.

There are pros and cons of INVOcell to consider.

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**THE PROS**

— INVOcell is less invasive.
— It is ideal if only one to two children are desired.

With traditional IVF, in a woman with healthy ovarian reserve, a large number of eggs are hopefully retrieved. This is done to get enough embryos for the child now, and have some frozen for future children in hopes the couple do not have to do IVF multiple times. Because INVOcell usually produces on average one to two embryos, the device can be ideal.

— It is less costly because less medication is used, less monitoring is performed and there is less intervention by the laboratory. INVOcell can be a little over half the cost of traditional IVF.
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**CONS**

— In order to optimize success, strict criteria need to be met. While these criteria are ideal, a couple may still choose to do INVOcell for cost or religious reasons, but this might lessen their success. Criteria include:
— Be between the ages of 18-38
— Have a normal FSH (<10)
— A normal AMH (>1)
— A normal uterine cavity
— Total sperm motile of at least 300,000
— BMI <35
— INVOcell is less successful than traditional IVF. The success rate in nature, or with oral medication is between 18-20%. Add in intrauterine insemination and the success reaches 23-25%. Success of traditional IVF for women under 35 years of age is 60%; for women aged 35-40, the success rate is 45-50%. The success of INVOcell is being reported as being in the range of 30-40%.
— You many need to be back to square one. Because we are relying on egg and sperm to “do their thing”, it’s been reported that there is a 20-25% chance that no embryo will be formed. While this would be a crushing result, this may be just the information needed to address the fertility problem. Traditional IVF with intracytoplasmic sperm injection (ICSI) (a procedure where sperm is injected into the egg to cause fertilization) might be required.

The world of fertility is continually evolving and exciting advances are being made. INVOcell is just one of them and for many, it may be just the right next step.

**DR. CAROLE KOWALCZYK** is medical director of the Michigan Center for Fertility & Women’s Health. She is a board-certified reproductive endocrinologist and specializes in making family dreams come true. She is also the publisher of Wisdom & Wellness, a fertility and health guide.
At the Michigan Center for Fertility & Women’s Health, we do everything we can to support you during your fertility journey. Our offices are calming and comforting, and our fertility doctors and staff are experts at guiding you through your many questions and concerns.

**STATE-OF-THE-ART CARE**

We balance a nurturing environment with state-of-the-art care, making Michigan Center for Fertility & Women’s Health one of the best fertility clinics in Michigan. We offer the latest in fertility treatment, including in-vitro fertilization (IVF), ovulation induction, fertility preservation, semen analysis, hormone testing, egg and sperm freezing, embryo cryopreservation, and more. We also specialize in pre-implantation genetic diagnosis (PGD), a screening test used to determine if there are any genetic conditions, and pre-implantation genetic screening (PGS) which samples for chromosomal abnormalities. We are also the only Michigan fertility clinic to currently offer INVOcell, a revolutionary new fertility treatment. For a complete list of MCFWH’s services and treatment options, visit mifertility.com.