

# Money-Back Fertility Treatment Payment Plans

## *Money-Back Payment Plans*

Money-back fertility treatment payment plans or shared risk plans are payment plans that offer unsuccessful patients a portion of their money back. They usually include two or three fresh IVF cycles followed by the transfer of resulting frozen embryos. Money – back fertility plans commonly include fertility financing programs, fertility medication program and some re-arrange or restrict benefits through employer (sponsor) or insurance plan. All together called the bundle.

### **Who Qualifies for Money-Back Fertility Treatment Payment Plans?**

IVF programs that offer money back plans usually require certain age limits and normal to excellent ovarian reserve markers. Older women and those with low egg reserve usually do not qualify for such plans. Programs also place contingencies on ovarian reserve and transferring more embryos. Hence they exclude women interested in a single embryo transfer.

Some of the money – back fertility enterprise do not operate clinical IVF programs. They offer the financial scheme for payment and in some instances fertility drugs. They refer patients to clinics but do not conduct the treatment. The specifics of the couple may not coincide with the contingencies for money – back arrangement. The result is either you are alert to dismiss the plan or follow the plan and take your chances with the success rate. This is the most disturbing aspect of money-back fertility plans.

The delivery rates after fresh IVF in women commonly included in money back plans is close to 40% with single embryo

transfer, 50% with two embryo transfer. Use of frozen embryos add approximately 30% chance for delivery after transfer of frozen embryos from the first fresh IVF cycle. In other words they are the least likely to require multiple cycles in the IVF population. Moreover, they are the most likely to get pregnant with multiple babies. The cost for money back fertility treatment plan is maybe higher than a single fresh IVF cycle and a transfer of frozen embryos. Interest is associated with monthly payment plans. Medicine and multiple treatment cycles are also sometimes bundled. In addition cost can escalate due to obstetric care for multiple pregnancy.

At New York City IVF we educate women and recommend single embryo transfer up to age 38.

One opinion about money back fertility treatment plans is [New York State Department of Health Task Force Report: Executive Summary on ART](#)

*Payment plans that offer unsuccessful patients a portion of their money back create significant ethical concerns.*

*Physicians whose payment depends on the success of treatment have an incentive to accept only those patients with a strong chance of success (perhaps patients who do not qualify as infertile under generally accepted standards) and to turn away needy patients whose outcome may be less certain. In addition, when payment is linked to outcome, physicians may encourage patients to accept aggressive treatments that increase the chance of success without due regard for the risk those treatments may entail.*

*Nonetheless, while the Task Force members are deeply troubled by the risks created by money-back payment plans, they do not believe that these plans are inherently unethical in all cases. Programs that offer money-back payment plans should clearly inform patients of all essential terms of the plan. No plan should require patients to provide a blanket consent*

*to all treatments and procedures recommended by their physician.*

*Patients enrolled in money-back payment plans should receive a prorated refund if they withdraw from treatment before they have completed all of the cycles covered under the plan. The most appropriate definition of "success" in the context of money-back payment plans is a live birth. The condition of the child should never be a factor in the definition of success*

IVF programs can address this ethical question using different arrangement. Reducing fees for the second cycle as opposed to selling multiple cycles together would be one suggestion.

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## **Male Factor Infertility:** **Azospemia**

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Male Factor Infertility: Azospemia means no sperm are found in the ejaculate. Azospemia requires careful evaluation and treatment so that the couple has the best chance to conceive with IVF. The evaluation should be methodical and compassionate to guide the couple through such a multifaceted process to pregnancy and delivery of a healthy child.

### **Four Things Have to Happen at Initial**

# Evaluation for Azospermia

a. Is it truly azospermia? sometimes repeat sperm analysis together with spinning of the ejaculate multiple times may yield few sperm. This has to be performed by a diligent andrologist and in a facility that can freeze sperm immediately if found. In some azospermic men, repeat analysis and freezing can avoid a surgical procedure to retrieve sperm.

b. A genetic cause for azospermia should be excluded. Specifically three known genetic problems should be excluded because they can be passed to offspring and because they can predict the success of surgical sperm retrieval. A chromosome analysis should be done to exclude sex chromosome abnormalities e.g klinefelter Syndrome (47XXY). Y chromosome microdeletion study should be conducted to exclude a deletion of the part of Y chromosome related to sperm production. Cystic fibrosis carrier screening should also be run to detect defect in the CF gene that may be associated with absence of the ducts conducting the sperm outside of the testes.

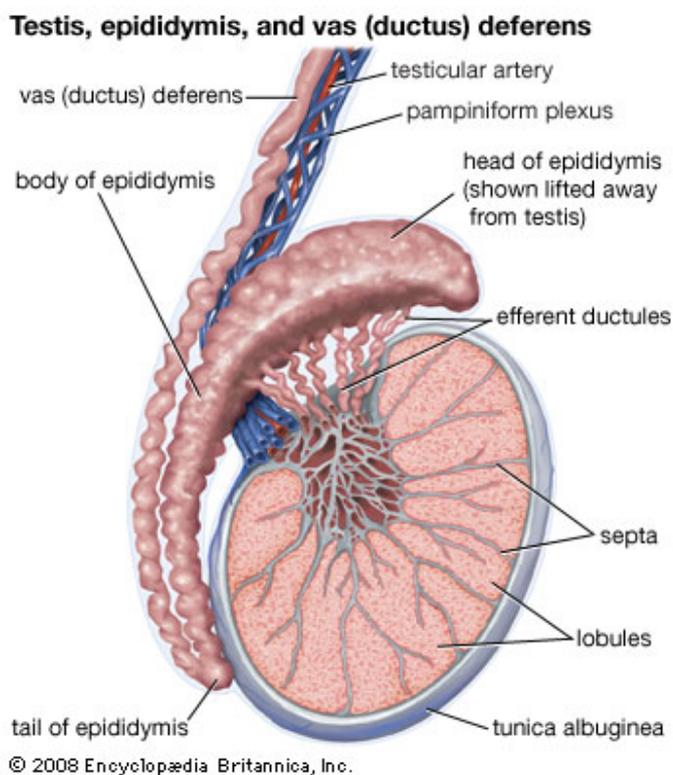
c. Evaluation of Ovarian Reserve for Female Partner. If ovarian reserve evident by day 3 FSH, AMH levels and antral follicle count seen on vaginal ultrasound is not diminished, this predicts reasonable chance for success with IVF-ICSI if sperm are found. Extremely low ovarian reserve or advanced female age may preclude surgical sperm retrieval, unless an donor eggs are acceptable.

d. Urological evaluation. This has to be the last step in evaluation. Male urologists are the physicians specializing in evaluating the chance for successful sperm retrieval (TESE) as well perform these procedures. Before referral by a reproductive endocrinologist and infertility specialist, there should be every reason to think that if sperm were obtained there is a reasonable chance for conception after IVF-ICSI. The urologist should be a specialist in male reproduction and well versed in the techniques of sperm retrieval. You actually

need to ask your urologist two questions: what are my personalized chance for finding sperm when surgery (TESE) is performed? What the technique used to obtain sperm? Authorities generally agree that the technique for TESE markedly affect the chance for finding sperm.

Moreover, every workup should end with an important question; would you accept donor sperm if no sperm were obtained after surgery?

## How is TESE Performed?



### Testes and ducts

Testicular sperm extraction is a surgical procedure that entails sampling of multiple areas of the testes aiming at finding sperm to be used for IVF-ICSI. The testis is delivered outside the scrotum, bisected and multiple biopsies obtained from several areas of the testes. The tissue is examined for the presence of sperm. If no sperm were found, more biopsies are obtained till sperm are found. There are generally two types of azospermia: obstructive azospermia (due to

obstruction of the ducts of the testes while sperm production is intact). Sperm is obtained in close to 100% of these cases. Non-obstructive azospermia (NOA) where there is a defect in sperm production, approximately 60 to 70% of the procedures yield sperm.

Blind biopsy from one area of the testes has no place in modern treatment of azospermia. Asking your urologist about the technique of TESE is of paramount importance. The first surgical attempt carries the highest chance for success.

Recently, Doppler ultrasound mapping of the testes can help localize the areas of that should be biopsied because they yield a higher chance for finding sperm.

## **Why is IVF-ICSI Required after Sperm Retrieval?**

The number of sperm obtained after TESE is small in the magnitude of tens to hundreds of sperm, too small to use the sperm for IUI. ICSI is absolutely required for all cases of surgical retrieval of sperm. The sperm can be used in one of two ways

a. Frozen TESE sperm: The sperm are frozen to be thawed at a later date, on the day of egg retrieval for the female partner. This method saves the cost of IVF if no sperm were retrieved and donor sperm use is unacceptable.

b. Fresh TESE sperm: Ovarian stimulation is started and TESE is performed on the day of egg retrieval or the day before. Fresh sperm are used for ICSI. Donor sperm (if acceptable) is obtained as a backup. Though suggested, there is no concrete evidence that fresh TESE sperm is superior to frozen TESE sperm.

In addition in some cases with associated genetic problems, preimplantation genetic diagnosis (PGD) can be performed

followed by the transfer of normal embryos.

## **Can the Chance for Pregnancy be predicted in Male Factor Infertility: Azospermia ?**

There are several predictive factors for pregnancy in female partners of men with azospermia. These can be categorized into:

i. Successful sperm retrieval is related to whether the procedure is the first one or a repeat procedure, the volume of the testes, medical treatment before surgery, the technique used and the cause for azospermia. Some causes are associated to minimal chance for obtaining sperm.

ii. Pregnancy after sperm retrieval is related to the female partner age and her ovarian reserve. Younger women have a very good chance of conceiving if sperm are obtained. This is the most important factor once sperm are retrieved.

iii. Obstructive azospermia has a higher chance for sperm retrieval than non-obstructive azospermia.

iv. Moving sperm at the time of ICSI has a higher chance to yield a pregnancy than non moving sperm

v. Men with higher testosterone levels and lower LH levels has higher chance of sperm retrieval

vi. The effect of using of frozen TESE sperm is controversial. Some authorities think that using a fresh TESE sperm is better than frozen sperm.

vii. Use of Doppler: recent work indicates that the use of Doppler study of the testes before the procedure may help localize the areas that should be biopsies and yield a higher chance for sperm harvest.

*Male Factor Infertility: Azospermia requires a*

*multidisciplinary approach; first consultation with a reproductive endocrinologist (female age is still the most important factor) followed by a consultation with a reproductive urologist for the TESE procedure for successful sperm harvest and pregnancy*

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## **Endometriosis: Fertility Options are Clear**

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Endometriosis means tissue of the lining of the uterus is present outside the its normal boundaries. It can involve the pelvic lining, the ovaries (endometrioma), the fallopian tubes, the intestine and the muscle of the uterus (adenomyosis). As menstruation takes place in the uterus, these deposits menstruate into itself, become distended and causes pain (pain with menstruation, chronic pelvic pain, pain with intercourse, urination or defecation). Moreover, because of its chemical effects or associated pelvic scarring endometriosis may cause infertility.

Accurate diagnosis of endometriosis requires laparoscopy and biopsy of the areas suspicious because of its appearance. If you are suspect you have endometriosis (usually because of pelvic pain) and want to get pregnant or having difficulty becoming pregnant you face a small dilemma. You are usually given different recommendations from different headquarters, depending on their expertise and biases. Examples of such

recommendations:

'Lets do laparoscopy to diagnose endometriosis, remove any endometriosis we find as well as remove any scarring'

'Lets give you medications for endometriosis'

The question is which recommendation is "good for your specific case".

## **Few basic principals about endometriosis treatment**

These are not disputed principals, just facts related to the treatment of endometriosis in general.

1. Accurate diagnosis of endometriosis requires a laparoscopy and pathological examination of tissue biopsies obtained.
2. Medical treatment of endometriosis does not allow you to get pregnant while you are using it: oral contraceptive pills, synthetic progesteron, danazol and GnRH agonists (lupron) prevent ovulation. While you are taking these medications you will mostly not ovulate so you will not get pregnant.
3. Endometriomas (endometriotic cysts of the ovary) do not respond to medical treatment. Moreover their removal mostly require removal of a part of the ovary, because they are firmly attached. Thus their removal can lower the number of eggs remaining in the ovaries (ovarian reserve).

## **Treatment of infertility associated with endometriosis**

Though each specific situation may require a different course of action as recommended by your physician, there are general guiding principals for treatment of infertility when endometriosis is suspected.

1. **Infertility investigation:** do not make any treatment decisions without a full fertility workup. Do not proceed

unless you know your partner [sperm analysis](#), obtained the results of [ovarian reserve tests](#), tested if your fallopian tubes are open or not via an HSG as well as general [preconception lab tests](#). Why? if you undergo surgical treatment for endometriosis and later discovered that your partner has very low sperm count requiring IVF and ICSI, then surgery had no potential to help you get pregnant.

2. **What is your priority treating infertility or treating pain?** This is important because medical treatment, although effective in treating pain cannot help you with infertility because it mostly prevents ovulation. Please note that the best treatment for pain associated with infertility is pregnancy. The large amounts of progesterone produced during pregnancy suppresses endometriosis, sometimes for years after delivery.

3. **Resection of endometrioma;** If a [cyst consistent with endometriosis](#) is seen on ultrasound be very careful with a recommendation to resect that cyst. Resection requires surgery. it reduces ovarian reserve because of removal of ovarian tissue. Unless the cyst is suspicious of malignancy or complication they are better left alone with observation while proceeding directly to fertility treatment e.g IVF. There is no evidence that removal of the cyst improves IVF success. On the contrary, removal of the cyst is associated with low response in that ovary.

4. **Laparoscopic surgery for mild and minimal endometriosis:** There are two studies that showed an improvement in pregnancy rate after laparoscopy for mild endometriosis. To put this in perspective, yes laparoscopy for infertility and mild endometriosis and infertility is an option but the magnitude of benefit in this case is limited at best. You first have to undergo surgery (with its possible complications). If endometriosis is found and ablated you would get a small bump in pregnancy rate in the year following surgery. The surgery may also help you with pain. On the contrary, endometriosis

may not be found and you still have to try after surgery. Considering all the risks and benefits, the odds for pregnancy is not dramatically improved.

5. **An alternative approach to mild and minimal endometriosis:**

The general thinking about infertility associated with minimal and mild endometriosis is that it is unexplained infertility. In these cases there is no mechanical distortion of pelvic organs and fallopian tubes are open. If sperm analysis is within normal enhancing fertility could be achieved through stimulation of the ovary to produce multiple eggs followed by IUI or IVF. This approach avoids surgery with its potential complication. IVF carries approximately three times the odds of pregnancy and can control the risk for multiple pregnancy, compared to IUI.

6. **Moderate to severe endometriosis:** These cause distortion or blocking of the fallopian tubes. Surgery is an option but its much more complicated than mild cases and has the risk of injury to the intestine, ureter, fallopian tubes, ovaries..Scarring also may recur after surgery. An alternative approach is to proceed to IVF. It avoids major surgery and can address tubal, male and ovulatory factors. IVF success is not reduced in women with endometriosis.

7. **Adenomyosis (endometriosis of the uterus):** MRI is sometimes needed for accurate diagnosis of adenomyosis. Adenomyosis is a surgical disease and its cure require removal of the whole uterus. This is because it cannot be shelled out of the uterus like a fibroid. Better ignored and proceed with fertility treatment.

Do not make any decisions related to infertility before a complete workup; sperm analysis, ovarian reserve tests and fallopian tube patency test. Avoid surgery in the ovary as it may reduce ovarian reserve. There is no established evidence that the chance for successful fertility treatment is reduced in women with endometriosis. Laparoscopic surgery is an option

but is associated with surgical complications.

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## **Even with Diminished Ovarian Reserve You Can Achieve Pregnancy**

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#### **Diminished Ovarian Reserve: What Does it Means**

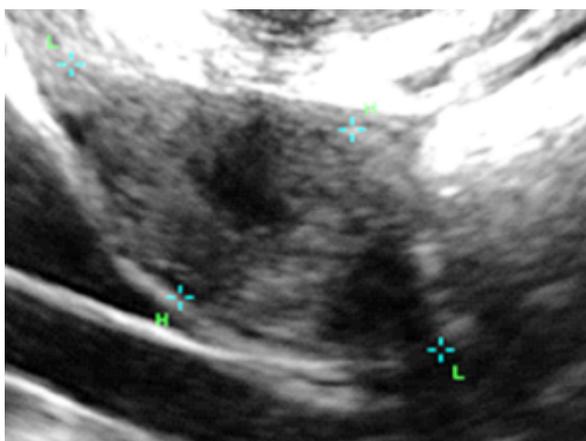
The number of eggs and their quality are reduced at a given age. Women with diminished ovarian reserve have less eggs and more chromosomally abnormal eggs than women in the same age group. It reflects low response to fertility medications and more difficulty achieving a pregnancy. Women with diminished ovarian reserve may reach menopause one or more years earlier. As few eggs remain, still some of the eggs are chromosomally normal and pregnancy is very possible in women with diminished reserve.

#### **Diminished Ovarian Reserve: How it is Diagnosed**

**History:** Some historical factors may indicate low reserve including cigarette smoking, prior surgery of the ovary (removal of a cyst or an ovary), prior exposure to chemotherapy (particularly cyclophosphamide) or pelvic irradiation, early menopause in other family members (mother, sister), recurrent early first trimester pregnancy loss (indicating low egg quality) and others.

**Day 3 FSH:** It is an indirect marker for ovarian reserve. It is produced by the master gland in the brain. levels  $> 12\text{mIU/mL}$  indicates low reserve. It is less accurate than AMH or ultrasound.

**AMH:** is a protein produced by the cells surrounding the egg in small size follicles. It is more accurate than day 3 FSH. Levels  $< 1.5\text{ng/mL}$  indicates low reserve



Low antral follicle count  
(Ovarian Reserve)



Good antral follicle count  
(Ovarian Reserve)

**Vaginal Ultrasound:** in expert hands (a reproductive endocrinologist), it is an accurate measure for ovarian reserve. The number of small follicles  $< 10\text{mm}$  especially on day 2-5 of menstrual cycle is an accurate indicator for ovarian reserve and response to fertility medication. The presence of

an advanced follicle >13mm on day 2 or 3 is also an indicator for low reserve as it indicates that the ovary is under increased stimulation from FSH produced the master gland.

More details on ovarian reserve tests can be found [here](#).

## **Diminished Ovarian Reserve: What Should you Do**

If all other fertility factors (male factor, tubal factor..) are normal *you should attempt to conceive irrespective of ovarian reserve*. Ovarian reserve tests are not absolutely accurate. They do predict response to ovarian stimulation but are not very good in predicting pregnancy. Two general options exist: i. regular intercourse or ii. ovarian stimulation to produce more than one egg followed by IUI or IVF.

## **Diminished Ovarian Reserve: What Should your Reproductive Endocrinologist Do**

Your reproductive endocrinologist should ascertain ovarian reserve with multiple modalities: ultrasound and blood work. The infertility workup should be completed first: sperm analysis, hysterosalpingogram test for patency of fallopian tubes as well as preconception labs. Your infertility specialist should be able to advise you on the treatment protocol that is more likely to achieve a pregnancy. *Fertility specialist should not deny treatment to women based on diminished ovarian reserve*. Every woman with diminished reserve should be offered treatment at least once.

If the treatment plan involves ovarian stimulation, a special stimulation protocol or adjuvant treatment should be considered hopping at increasing the ovarian response (number eggs produced during the cycle). Some of the modifications commonly used are increasing the dose of gonadotropins, use of antagonist or flare antagonist, addition of clomid or letrozole, pretreatment with testosterone and use of growth hormone.

## Diminished Ovarian Reserve: What would you expect from fertility treatment

Well it depends on few factors: **Age and Relative Response to Fertility Medications**

If a younger women e.g <37 years produce two or three good quality embryos at the end of stimulation, they have a reasonable potential to achieve a pregnancy after IVF. The chance of getting pregnant in women older than 40 with few embryos is much lower. When one compare effects of low ovarian reserve and age on reproduction it is clear that age has more negative effect on reproduction than age. Age is associated with low egg quality while ovarian reserve mainly speak for the number of eggs in the ovary. *Younger women with low egg production fairs much better than older women with good reserve.*

Response to ovarian stimulation is not created equal. Women that produce four or more large follicles >15mm are at much better chance for pregnancy after IVF. On the other hand those that have lesser response <3 follicles are a much lower chance for success and should consider converting their cycle to IUI or just cancel the cycle if they have male or tubal factors. They then can try again after considering a modification of the stimulation protocol. In women that produce > 3 -4 eggs IVF is substantially more successful (about three times) than IUI.

Because the response to fertility medication is difficult to judge just based on ovarian reserve markers, most women should be encouraged to try ovarian stimulation once at least and most women should not be denied treatment based on the notion of low ovarian reserve.

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# Egg Freezing what Do you Hope to Accomplish?

## **Egg Freezing what Do you Hope to Accomplish?**

The best approach motherhood is to actually try to get pregnant. Though methods of fertility preservation are very helpful, none is a guarantee to make a baby in the future. So the primary advice is "try to get pregnant if you can" after checking different fertility factors (male, tubal and ovarian factors as well preconception screening). If getting pregnant is not feasible in the short term, due to medical or social issues, egg freezing is considered. *A reproductive endocrinologist is faced with the challenge of foreseeing if a specific woman, when stimulated and her eggs are harvested and frozen, has a reasonable potential to conceive using these eggs at one time in the future.*

### **Indication for Egg Freezing**

Women should consider [egg freezing](#) when specific medical or age related situations threatens their ability to have a child in the future.

1. Fertility preservation: When a medical disorder or its treatment can diminish ovarian reserve and reduce the chance for conception e.g cancer treatment (most common is breast cancer), lupus nephritis requiring treatment with chemotherapy, blood diseases requiring bone marrow transplantation, premature ovarian dysfunction and others. About 2 weeks should be available for an egg freezing cycle.

2. Fertility extension (no male partner): women with no male partner and declining the use of donor sperm can freeze their

eggs to use in the future when in a committed relationship.

3. Fertility extension (with a male partner): women with a male partner can elect to freeze some of their eggs unfertilized. Unfertilized eggs are under the control of the woman alone, unlike embryos that cannot be used without the consent of both partners.

4. IVF with failed sperm retrieval or ejaculation: In some cases with male factor with failed retrieval of sperm from the testes or failed ejaculation, eggs can be frozen and used later when sperm are available.

5. Children undergoing treatment for cancer and other diseases with the ascent of their parents.

## **What should you consider before proceeding to egg freezing**

i. Women <38 years with good ovarian reserve: are excellent candidates for egg freezing. Good reserve is indicated by antral follicle count >10 as seen on vaginal ultrasound and AMH levels > 1.75 ng/mL. They will likely produce a good number of oocytes to freeze in a single cycle. These eggs are relatively healthy as they are young. Age <36 years was the best predictor of egg freezing so far in scientific reports.

ii. Women <38 years with diminished ovarian reserve: are still good candidates for egg freezing. They produce lower number of eggs after stimulation but their oocytes are relatively healthy (chromosomally normal). They can undergo more than one cycle of egg freezing if the first cycle yields <8 mature eggs.

iii. Women 38-40 years with good reserve: can still consider egg freezing with no further delay.

vi. Women 38-40 years with diminished ovarian reserve: should consider egg freezing with caution. They will not produce a

good number of eggs and may require multiple cycles of egg freezing.

V. Women >41y are not good candidates for egg freezing even if they have a good reserve as the majority of their oocytes are not chromosomally normal. Although pregnancies were reported from vitrified oocytes up to age 44, the chance of pregnancy is quite low in women older than 40.

## **Realistic Expectations for egg freezing**

Not only should the number and quality of eggs be considered, but also the survival of thawed eggs, fertilization and ultimate ability to implant. These issues are very sensitive to the method of ovarian freezing. Vitrification (rapid freezing) is not the method of choice for low temperature storage of eggs due to high survival and subsequently fertilization and embryo development ([more details here](#) and [here](#)).

Survival on average 85% of vitrified thawed eggs survive, irrespective of age.

Fertilization approximately 80% of thawed eggs fertilize after injecting each with a sperm (ICSI).

Age specific chance for a live birth after thawing of vitrified eggs can be presented in different ways. The delivery rate is approximately 5 to 15% per thawed egg depending upon the female age at freezing. For example, if eggs are thawed and fertilized and three embryos were transferred to the uterus, the probability of delivery would be 25% at age 30 and 15% at age 40.

If a 35 year old decided to proceed with an egg freezing cycle and produced 10 eggs, 8 eggs were mature and frozen. When she presents back 10 years later to utilize her eggs and thaw all of them 7 eggs are expected to survive, 6 eggs are expected to fertilize. If three embryos were transferred her chance for

delivering a baby is 20% (the remaining three embryos are frozen). If The first cycle does not succeed and the next three embryos were transferred, her cumulative chance for having a baby from the original egg freezing cycle is approximately 40%.

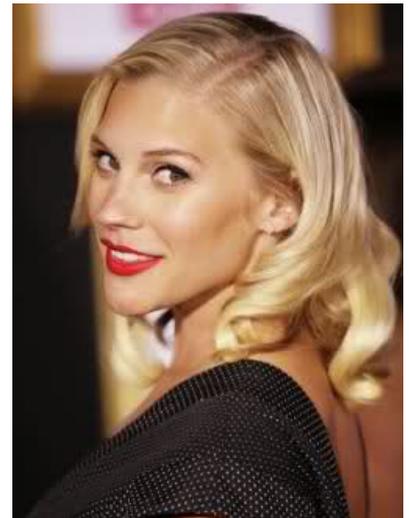
Sorting through statistics of egg freezing is difficult. No single clinic can present convincing statistic due to small number of egg thaw and transfer (not just egg freezing cycles). Most studies present select donors and selected women and not directly applicable to everyone. And then there is the safety issue and lack of long term follow up data related to safety and health of newborns.

Age is most important predictive of success of egg freezing followed by method of freezing. Vitrification much better than older slow freezing methods. There is now reasonable body of data, though not definitive, that allows prediction of outcome for egg freezing using vitrification based on age and the expected number of retrieved oocytes. It is neither accurate nor scientific to label egg freezing with terms such as [reliable and guarantee](#). It certainly is not a guarantee of children. What is more productive is to i. try to avoid egg freezing through trying to conceive. If not possible, in a short while, then ii. understand your own personal chances of delivering a healthy baby through egg freezing and if they seem reasonable to you consider the procedure, taking in consideration the limitation of available data and filtering out the marketing hype.

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# Thyroid Cancer and Future Fertility

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Thyroid Cancer and future fertility

Thyroid cancer is diagnosed in 45,000 individuals each year in the US. Its treatment may affect future fertility in men and women. It is more common in women with female to male ratio of 3 to 1. It is the most rapidly rising cancer in women living in the US. Thyroid cancers are commonly diagnosed in young women in their reproductive years. Treatment of thyroid cancer generally yields excellent results, with the majority of women surviving 10 years or more after diagnosis. Some women develop thyroid cancer due to iodine deficiency in diet or prior neck radiation. Some types of thyroid cancers are related to inheriting an abnormal gene.

Several types of thyroid cancer are recognized 1. Papillary cancer 2. Follicular cancer 3. Medullary cancer 4. Anaplastic cancer 5. Thyroid lymphoma. Papillary and follicular cancers are less invasive tumors and are encountered in the majority

of women diagnosed with thyroid cancer. They also respond to estrogen as they carry estrogen receptors. Estrogen may promote growth of thyroid cancer cells. Thyroid cancers are usually suspected on neck examination followed by ultrasound or Iodine scan then biopsy. In general, treatment of thyroid cancer require total thyroidectomy-surgical removal of the thyroid gland followed by radioactive iodine to ablate any thyroid remnants. This is followed by long term thyroid hormone replacement. Long term follow up is required after treatment.

## **Effect of thyroid cancer treatment on the ovary**

Thyroidectomy followed by thyroid hormone replacement is not known to affect future fertility in men and women. Radioactive iodine can affect the number and quality of eggs remaining in the ovary. The effect is dependent on the dose of radioactive iodine and the age at treatment. Twenty to 30% of women experience transient amenorrhea or irregular menses starting about 3 months after treatment. Normal menses resume about 6 months later. Permanent ovarian failure is rare but may occur in women at age 40 or older at the time of treatment. Increased incidence of miscarriage is reported in the first year after treatment. With the exception of miscarriages, there is no evidence that exposure to radioiodine affects the outcome of subsequent pregnancies and health of borne children.

## **Effects of radioactive iodine treatment on the testes**

Effect of radioactive iodine treatment may be more severe in men. and is related to the total dose of radioactive iodine received. Transient reduction in testosterone and sperm count may occur but sometimes permanent reduction in sperm count and testosterone levels. Men who received large total dose

sometimes sustain permanent damage to the testes with absence of ejaculated sperm-azospermia. There is no evidence of effects of radioactive iodine on their newborn children, although its advised that men avoid fathering children for 6 months after treatment.

## **Options for fertility preservation**

Men interested in future fertility should consider sperm freezing prior to radioiodine treatment. Women should also consider fertility preservation if they will be treated with radioactive iodine and are older than 35 years. Radioiodine treatment will reduce their ovarian reserve. In addition they will be required to avoid pregnancy for a year or so. Options available for preservation of fertility in women include ovarian stimulation and egg retrieval followed by egg or embryo freezing. Ovarian stimulation can be modified to avoid estrogen exposure during stimulation. Moreover, in familial thyroid cancers, embryos can be genetically tested to avoid transmission of the abnormal gene to children. Men and women diagnosed with thyroid cancer can benefit from consultation with a fertility preservation specialist prior to treatment to discuss effects on gonads and methods to preserve future fertility. Read more at <http://nycivf.org>

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## **Ovarian Reserve Revisited-Do You Have Enough Good Eggs?**

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## **Trying to conceive over age 35 is generally not easy**

I know because I tried for years to have a baby without success. While there are many factors which impact conception, one of the first concerns for women over 35 is if they have enough healthy eggs to get pregnant. Research has shown that women carry a reserve of eggs throughout their lives and that reserve diminishes over time. There are several tests which help to determine ovarian reserve including antral follicle testing, the clomid challenge and the AMH test which is relatively new.

### **The antral follicle test**

Uses vaginal ultrasound to count and measure the small follicles, antral follicles, on the ovary. The higher the number of antral follicles, the better ovarian reserve and better odds for conception.

### **The AMH Test**

Anti-mullerian hormone test, measures the levels of AMH in a woman's blood. Since this hormone remains relatively constant over the menstrual cycle, it can be tested at any point in the month. Women with higher AMH levels tend to have a better ovarian reserve and a better chance at conception.

## **When I decided to try to conceive**

# one last time at age 44

My [reproductive endocrinologist](#) began by ordering the *Clomid Challenge Test*. For the test, I took clomid, a fertility drug used to induce ovulation, for 5 days. Generally speaking, the procedure works like this:

- On Day 3 of your menstrual cycle, a blood test is given to measure your FSH, LH, and estradiol levels.
- On Day 5 of your cycle, you begin to take a 5-day supply of clomiphene citrate, 100 mg of clomiphene each day for five days.
- On Day 10, you will have another blood draw to check FSH, LH, and estradiol levels again.

Normal results include low FSH values on both Day 3 and Day 10, and low estradiol values on Day 3. Results are abnormal if your FSH values are elevated. Your doctor may decide to re-test if your results are abnormal.

My results were normal but that is a fraction of the total conception story and half of the ovarian reserve story. [Ovarian reserve](#) consists not only of the quantity of eggs but also the quality of eggs. Research tells us that while tests like the clomid challenge check for the quantity of eggs, the quality of eggs is generally determined better by age. This is an unfortunate fact for those of us over 35.

According to Dr. James Toner in his paper "Ovarian Reserve, Female Age and the Chance for Successful Pregnancy", once women reach their mid thirties, specifically 37, their egg quantity begins to diminish at a faster rate. Toner also reports that even if egg quantity is good, chances of a viable pregnancy drop due to the diminishing quality of eggs as women age.

Based on the research, it is clear that the averages do not look promising for women over age 35 trying to have a baby.

There is, however, other information to consider. Let's take a look at the bell curve. Basically, about 2/3 of the cases for a given situation fall in the fat part of the curve meaning that averages generally apply to most people. However, there are still one third of the people who fall outside of the fat part of the bell curve and averages do not generally apply to them. As you look at your individual situation, it is your lab work, anatomy and physiology that matter. I am a classic example of defying the odds. My ovarian reserve quantity was good but that wasn't what was preventing me from conceiving a child. It took many more tests to determine that a badly placed uterine tumor was most likely preventing implantation. At age 44, the research showed that an average woman in my situation had only a 3% chance of having a healthy baby. Yet, I was able to conceive in two of 4 IUI treatments and gave birth to a healthy little girl 9 months ago at the age of 45.

## **There are many components to conceiving a child**

Ovarian reserve is one of them. There are also many medical interventions to boost the odds of conception. Medical research provides us with excellent information about infertility and age including work on ovarian reserve. While the research tells us that the odds of getting pregnant in late 30's and 40's diminishes, one needs to remember that each woman is unique and she needs to work with her doctor to explore all options in her quest for pregnancy.

✘ *About the Author: Deborah Lynn is the creator/owner of Over 35 New Moms and a former corporate vice president. She holds degrees in Education, Kinesiology and pursued doctoral study in Physiology. She spent over 17 years working in the corporate environment and now focuses her time on raising her daughter and helping other women over 35 in their journey to have a baby. For more information, visit The*

## Hepatitis B: what do you need to know if trying to conceive

### **Hepatitis B: what do you need to know if trying to conceive**

Hepatitis B is relatively common in the US and worldwide. There are approximately one million individuals living in the US with chronic hepatitis B. According to the CDC, the highest rate of infection occurs among those 20 to 49 years old. Approximately 5% to 10% of adults and children older than age 5 with hepatitis B infection go on to develop chronic infection. Globally, 350 million individuals live with chronic hepatitis B infection, according to WHO and other sources. One third of those infected reside in China (中国). It is more common in Asia, Saharan Africa and some areas in South America. Migration and medical tourism may increase the magnitude of hepatitis B problem in the US. In Asian countries the prevalence is slightly higher in men and is about 10% of adult population. Universal vaccination of all infants at birth and vaccination of at risk individuals e.g type I and II diabetes, sex partners of hepatitis B infected individuals, men who have sex with men, travelers to high risk areas, can prevent transmission of hepatitis B.

Reproductive endocrinologists and fertility specialists are responsible for detection of hepatitis B in partners and

prevent the transmission of hepatitis to non infected partner and newborn. Women and men are tested for hepatitis B at the time of initial fertility consultation. Abnormal results are interpreted and measures are taken to avoid transmission to others, during natural conception and with the use of assisted reproduction (IVF).

## **Hepatitis B Discordant Couples Discovered Prior to Fertility Treatment**

One of the major means of transmission of hepatitis B is sexual intercourse. At initial consultation if one partner is hepatitis B Surface antigen positive (HBsAg) indicating chronic infection, vaccination of the other partner will most likely prevent the transmission of hepatitis B during attempts of natural conception and fertility treatment. The vaccine is administered three times at 0, one month and 6 months. High levels of Hepatitis B surface antibody (anti-HBs) indicates immunity.

During fertility treatment, when the male partner is infected and female partner is not, modification of sperm washing techniques minimize the risk of hepatitis B transmission. These include separation of sperm from seminal fluid and then testing of the sperm for hepatitis B before use IUI or intracytoplasmic sperm injection (ICSI). The use of ICSI may reduce but not eliminate the transmission of hepatitis B virus (controversial).

## **Prevention of Hepatitis B transmission from Egg Donors**

Egg donors are initially screened through careful history to exclude those exposed to risk factors, then a complete physical examination. They are also initially screened for viral infections including hepatitis B. Within one month of egg retrieval, donors are retested using conventional labs as

well as DNA based testing for hepatitis B (and hepatitis C and HIV) to further minimize the risk of transmission.

## **Prevention of Hepatitis B transmission from Sperm Donors**

Sperm donors undergo a careful questionnaire related to risk factor, followed by examination and laboratory screening. Sperm is obtained and frozen and quarantined. Donors are then retested using FDA approved laboratories to further minimize the risk of transmission of infectious diseases including hepatitis B.

## **Prevention of Hepatitis B transmission to Gestational Carriers**

Male and female partners (intended parents) are tested in a manner similar to sperm and egg donors. If testing was not possible, the carrier is carefully counseled that FDA mandated testing is not followed. In case of a hepatitis B carrier partner, the carrier is vaccinated prior to transfer of embryos.

## **Low Temperature Storage of Cells & Tissue from a Hepatitis B infected individual**

There were few reported cases of transmission of hepatitis B from frozen tissue. Those cases did not involve sperm, eggs or embryos. As a precaution, reproductive cells from infected individuals are frozen in separate tanks than those not infected. More recently, the use of closed systems that do not allow cells to touch liquid nitrogen in the tank, the use of nitrogen vapor instead of liquid and the sterilization of nitrogen using ultraviolet rays can further minimize the risk of transmission.

## **Hepatitis B Discovered During Pregnancy**

A hepatitis B infected mother have a small risk of transmission of the virus to the fetus during pregnancy. The risk of transmission, however, is significant at the time of delivery. Sometimes medical treatment of mothers is indicated with anti-viral medications to minimize this risk after consultation with a maternal and fetal medicine specialist.

All newborn to a hepatitis B infected mother should receive at birth

i. Hepatitis B immune globulin (HBIG) to neutralize a virus acquired from the mother and ii. Hepatitis B Vaccine to produce long term immunity.

Careful screening of intimate partners, egg and sperm donors can markedly reduce the chance of hepatitis B transmission during natural conception and IVF.

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## **Ten Reasons why You Should not Use Clomid for Fertility Treatment**

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**Not the Way your Using it Anyway**

*Ten Reasons why You Should not Use Clomid for Fertility Treatment, Not the Way your Using it Anyway.* Clomiphene citrate (clomid) was the first medication

introduced for fertility treatment (1960s). It works through masking of estrogen receptors in the brain. The brain, blind to estrogen in the blood, starts pouring FSH, the protein that drives development of dormant follicles in the ovary.

When one considers a fertility treatment: not only the pregnancy and delivery rates per cycle is considered, but also the time to conceive (TTC) and the complication rate especially multiple pregnancy. Clomid is a very attractive medicine to women and gynecologists, alike. It is an oral medication, easy to use for both general gynecologists and women seeking fertility treatment. It is also cheap. It is successful in inducing ovulation in 90% women that do not regularly ovulate e.g. polycystic ovary syndrome. Response to clomid is modest in most cases (1-2 follicles).

In spite of all these advantages, there are many other disadvantages. It, most likely, will not improve the odds of conception in regularly ovulating women. Its indiscriminate use, in The US and worldwide (without ultrasound monitoring of ovarian response), probably makes clomid the drug responsible for multiple pregnancies over all other forms of fertility treatment. Although clomid is successful in inducing ovulation in 80-90% of well selected patients, only 20% become pregnant. This discrepancy happens because of undesirable effects of clomid on the lining of the uterus (thin) and cervical mucus (thick). In my opinion though, many clomid cycles fail due to its in women that are not destined to benefit from it. Those are older and regularly ovulating women with unexplained infertility as opposed to suitable candidates: younger non-ovulating women. Clomid offers little help to women with unexplained infertility (ovulating) because in these women, the majority do not conceive because of chromosomal abnormalities in the eggs. Clomid commonly does not induce superovulation (many follicles) to partially compensate for abnormalities in the eggs.

## Do Not Use Clomid Unless

1. Preconception labs are normal. Many patients are prescribed clomid without a complete fertility workup, including genetic screening. If you and your partner are carriers of cystic fibrosis or sickle cell anemia gene abnormalities, for example, you are at risk of transmitting these diseases to your future children (1:4). Genetic screening should be performed BEFORE starting fertility treatment. It does not help you to detect these abnormalities after pregnancy ensues. Decline clomid or any other fertility treatment without proper preconception history and lab tests.

2. Evidence of patent tubes. After ovulation induction, using clomid, the eggs has to be picked up by the fallopian tubes. Sperm also has to enter the fallopian tube to allow fertilization. Completely blocked fallopian tube may prevent the egg and sperm to meet. Partially blocked fallopian tube may allow fertilization but the the embryo may become stuck in the tube leading to ectopic pregnancy.

3. Near normal sperm analysis. A sperm concentration of < 15 million per mL and movement < 50% may reduce the odds for fertilization and reduce the chance of pregnancy after clomid treatment.

4. If you ovulate regularly. Together with normal sperm analysis and open tubes, that indicates you have unexplained infertility. The most likely cause for not conceiving is chromosomal abnormalities in the eggs. We cannot fix chromosomal abnormalities in the egg but we can induce the ovaries to produce more eggs. More mature eggs means more chance of producing a normal egg. Clomid induces the ovary to produce 1-2 eggs in most cycles, thus does not address effectively egg abnormalities. On the other hand, if you are young and do not regularly ovulate, clomid is able to induce ovulation and potentially solve your problem.

5. Without monitoring. Some women are more sensitive to the effects of clomid. They respond by producing a large number of follicles. The safest approach here is to cancel the cycle and restart another treatment with a lower dose. Although the risk of multiple pregnancy with clomid is about 10%, women that respond with producing a large number of follicles are at a much higher risk. Careful monitoring of response, using vaginal ultrasound, is required in all clomid cycles.

6. Use the lowest dose that leads to ovulation (start with one tablet per day). Do not increase the dose if ovulation took place at a lower dose. Most patients get pregnant at adoses of 50 to 150 mg (1-3 tablets) per day. Increasing the dose does not increase the chance for pregnancy and increases the side effects of clomid e.g thin endometrium, chick cervical mucus..

7. Do not use clomid more than 3 months (6 months life time max). The majority of women get pregnant in the first three months of treatment. If you are younger and ovulate on clomid and would like to try few more months, then 6 months is the maximum amount of time you should use clomid in your life time.

8. Clomid less likely to lead to pregnancy delivery in women >38y. In women 38 or older with unexplained infertility, there is good evidence that clomid-IUI is inferior to IVF. The vast majority of women in that age group that start on clomid end up switching to IVF to achieve pregnancy.

9. Expertise with optimizing clomid cycles: clomid cycles should be supervised by a physician with expertise in clomid dosing, use of repeat courses, use of adjuvant treatments as estradiol and IUI. This enables maximizing the benefits of fertility treatment and tailoring treatment to individual woman.

10. Use letrozole before using clomid. Accumulating evidence from many studies, including randomized clinical trials,

indicates that letrozole is superior to clomid in terms of achieving pregnancy. Applying the same principals above, letrozole should be considered as the initial treatment for anovulatory infertility.

## **On tailoring Fertility Treatment to Specific Patient's Needs**

In too many times, the use of clomid for fertility treatment is a stark example of tailoring patients to treatments familiar to general gynecologists, rather than individualizing fertility treatment to women biology and fertility needs, citing ease of use, perceived safety and familiarity. Cheap treatments that appear safe can quickly become aggressive and unsafe if they lead to low pregnancy rate and high multiple pregnancy. The time lost treating older patients with clomid for a prolonged periods can be detrimental to their ovarian reserve and can minimize the chance for eventually achieving pregnancy and delivery.

## **On men and clomid**

There is no proof that men benefits from the use of clomid and similar treatment to improve sperm parameters. Specifically, there is no evidence that female partners of men that were prescribed clomid conceive at higher rates. With very few exceptions, clomid should not be used to treat male factor infertility.

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# **Fertility Treatment for Busy**

# Professionals

## Fertility Treatment for Busy Professionals

### From TTC to a Viable Pregnancy

If you and your partner has been trying to conceive (TTC) and your busy with work commitments, here are few tips that help you save time and shorten the time to conceive. Understanding few basic fertility concepts are helpful. What is fertility? It is the ability to conceive with regular unprotected intercourse. If you are having adequate frequency of intercourse, *then you have been trying, irrespective of timing of intercourse.* If this goes on for one year, if less than 35 or 6 months if 35 or more, then you are having difficulty getting pregnant. Female age is the most important fertility factor

Percent of currently married, childless women 15-44 years of age who have impaired fecundity by current age (from [CDC: The National Survey for Family Growth](#)):

	2002	2006-2010
<b>Total 15-44 years</b>	25.3%	21.2%
<b>15-29 years</b>	17.3%	11.0%
<b>30-34 years</b>	24.5%	14.2%
<b>35-39 years</b>	33.9%	39.3%
<b>40-44 years</b>	42.8%	47.1%

The longer you try, without conceiving, the stronger the indication that you have a significant problem with fertility.

The factors that need to be tested at initial workup include:

- i. Ovulation and ovarian reserve
- ii. Fallopian tubes: open or not
- iii. Male factor: sperm analysis and
- iv. General factors related to safety: infectious diseases and genetic carrier screening.

But how do you get all that done, understand the results, decide with your reproductive endocrinologist on a **fertility treatment** plan and execute the plan promptly, while you hassle your daily work and life engagements? A coordinated effort between you, your fertility specialist and other personnel enables you to promptly understand your fertility potential. A flexible reproductive endocrinologist can grant you an appointment at a time that does not disturb your work schedule. At your initial visit, ultrasound is performed for evaluation of ovarian reserve and any abnormalities in the uterus. In the same day, blood is drawn from you and your partner and can be sent for testing. Also a sperm sample can be submitted in the same day or few days later for sperm analysis. Hysterosalpingogram (HSG) can be performed by your physician or a radiologist within 1-2 weeks. Then, Can you communicate electronically with your physicians? This enable efficient discussion of lab results and subsequent steps.

How Fast Can You Decide on a [Fertility Treatment](#) Plan? It depends on many factors related to the complexity of fertility issues uncovered during the workup, need for surgery e.g to remove fibroids, polyps or dilated fallopian tubes, proposed fertility treatment, need for genetic testing of embryos (PGD) and need for third party reproduction (donor eggs, donor sperm, gestational carrier). If complex treatment is required usually a second visit is helpful for evaluation of the uterine cavity, trial transfer, training on fertility medication self administration. Handling of insurance and dispensing fertility pharmacies also help reduce the burden on

women busy with work engagements.

Many women are advised to continue to try to conceive naturally (3 to 6 months). For those requiring fertility treatment usually a fertility treatment plan can be executed in 10 to 20 days and within 5 to 8 visits. Again the flexibility of the practice in scheduling and communication allow you to execute around your daily work and family commitment.

The flexibility of the fertility clinic, efficient planning of visits and use of secure electronic communication methods enables women to go through fertility treatment with minimal inconvenience and work interruption.