## 1. About "Bavishi Fertility Institute"

- Bavishi Fertility Institute proudly claims it to be one of the best fertility institutes of India, comparable to the best institute in the world. Meticulously crafted and scientifically designed, Bavishi Fertility Institute offers all the latest therapies with help of latest equipments and techniques. There are dedicated floors for consulting, examination and counseling, endoscopy and cosmetology, ART-IVF, patient admissions, patients' utility and conference hall.
- Bavishi Fertility Institute with its dedicated team of specialist doctors, counselors program to coordinators, embryologists, and nurses, is one of the biggest institute in country dedicated to infertility care.
- At BFI every couple is deserving and every pregnancy is precious. Hence we extend best care to every couple.
- Excellent & consistent "pregnancy rate" in IVF treatment. Average pregnancy rate of approximately 40% per IVF cycle, Up to 45% if age less than 30 years.
- Bavishi fertility Institute is established and functioning in cooperation from Diamond Institute of Infertility and Menopause in USA.
- Organized many conferences, workshops and training programmes.
- Pioneer in India in providing "IUI training" to doctors.
- First time in India, authored a book on IUI for consultants.
- ▶ Indian Medical Association IMA has honored Dr. Himanshu Bavishi with its very prestigious award "Excellence in the field of Medicine Award".
- Founded "Gujarat Fertility Society".

# The best "Assisted Reproductive Techniques ART (Test Tube Baby) Department" More than 200 pregnancies per year with IVF treatment!!!

- International standard fertilization, embryo culture etc. Lab IVF procedures by qualified, Skilled and expert team of Embryologist with direct involvement of Dr. Falguni Bavishi.
  - "Preimplantation Genetic diagnosis" genetic testing of embryo before implantation transfer. The only institute in Gujarat offering PGD.
  - ▶ Exceptional expertise and experience of most complex treatment.
  - All ART IVF facilities under one roof.
  - ▶ IUI, IVF, Intra cytoplasmic sperm injection (ICSI), Blastocyst culture, Assisted hatching, Embryo freezing, TESA, PESA, Sperm Bank, Egg Donation, Embryo Donation, Sperm Donation, Surrogate mother, Laparoscopy, Hysteroscopy.
    - At Bavishi Fertility Institute it's a daily routine to see patients conceived or delivered with IVF treatment, counseling couples dergoing treatment.

#### **Sonography Department:**

- ► First fertility Institute in India to install world's best Aloka Japan 4D-real time 3D- sonography machine with trans abdominal and trans vaginal sonography 3D-sonography.
- Latest generation colour Doppler sonography.
- ▶ High frequency small parts sonography.
- ▶ Trans abdominal & trans vaginal sonography.
- ▶ Interventional sonography

#### **Endoscopy Department:**

- "Endoscopy department at BFI is upgraded to a full fledged "Endoscopy Department" in 2005.
- ▶ Offering endoscopy since 1987.
- More than 300 endoscopy operation every year.
- Diagnostic hysteroscopy & Laparoscopy
- Operative hysteroscopy & Laparoscopy
- All operations, including unusual and radical operations by Endoscopy.
- Fully equipped set up with world best latest generation equipments.
- ▶ Live telecast of surgeries.

#### **Male Infertility Department:**

- Semen examination, special sperm function tests, scrotal sonography, testicular biopsy etc.
- ▶ Medical & surgical management.
- ▶ Intra Uterine Insemination
- ▶ IVF Test Tube Baby Treatment
- ▶ ICSI Intra Cytoplasmic Sperm Injection Fertilization of one egg by injecting one sperm in it.
- Treatment of severe sperm problem with ICSI Intra Cytoplasmic Sperm Injection Fertilization of one egg by injecting one sperm in it.
- ► Semen freezing and storage
- Donor sperm bank

#### **Female Infertility Department:**

- Blood test, hormone test, genetic test, sonography, tube test, endoscopy etc
- Medical and surgical treatment
- ► Intra Uterine Insemination (IUI)
  - ► In vitro fertilization Test tube baby treatment Ovulation Induction - Super ovulation
    - Management of damaged fallopian tubes, endometriosis, unexplained infertility, adhesions etc.
      - ► Egg donation for ovulation problem advanced age patients
      - ► Surrogacy third party reproduction (For problem with uterus or endometrium)

3

## 2. What causes Infertility?

- Out of 100 couples who enjoy unprotected intercourse and try to conceive naturally only 80% of couples achieves pregnancy at the end of one year. If a couple fails to achieve pregnancy, in spite of unprotected intercourse for one year, it is considered as problem in conceiving-infertility.
- Female partner is responsible for infertility in 40% of cases, male partner in 40% of cases, both the partner in 10% of cases and 10% of cases remain unexplained.
- Newer diagnostic modalities and treatment options have created a new ray of hope for even the most difficult cases and practically "every couple can enjoy parenthood".
- ▶ If the process of natural conception, fails because of any reason, patient finds it difficult to conceive.

#### **Female factors for Infertility**

- Irregular, inadequate or total non production of eggs (oocytes)
- ▶ Damaged, dysfunctional or blocked fallopian tubes
- ▶ Damaged, destroyed or poor endometrium
- ▶ Improper sperm storage and transport at cervix
- ▶ Other problems like polycystic ovary, endometriosis, adhesions, etc.
- ▶ Endometriosis: development of endometrium at any abnormal site except for as inner lining of uterus
- Adhesions: When organs of body, unusually stick with each other or form webs, may involve uterus, ovaries fallopian tubes.
- ▶ Damage due to infections: effect of infection acquired in past i.e. sexually transmitted disease T.B. Etc
  - Indirect effect Diseases of the other organ of abdomen may affect i.e. Appendix
- Polysystic ovary: ovary with characteristic structure and function which has multiple small cysts and combination of various hormonal problems with variable presentation.

#### Male factors for Infertility

**Azoospermia**: Complete absence of sperm in semen, due to production failure, blocked transportation tract, Inadeuate hormones

Inadeuate hormones

Oligospermia : Less number of sperm in semen.

Asthenospermi: poor sperm motility, Complete absence of

motility 100 % non motile sperm

**Teratospermia**: More percentage of abnormal shaped sperm

Hypospermia : less volume of semen

Pyospermia : Pus cells in sperm

Difficulty in Intercourse Ejeculation failure, Anejeculation retrograde ejeculation

It is not possible to diagnose the exact cause of infertility into 15-20% of couples; it is called "unexplained infertility"

#### **Treatment:**

- The principle of the treatment is to find the cause of infertility and treat it.
- → If it does not result in pregnancy or the cause is unexplained, treatment is given to increase fertility. If the female partner's age is more the treatment should be aggressive.
- Usually, the treatment is planned with consultation with the couple as per the cause & as per the circumstances, likes and dislikes, desires, acceptability and affordability of the couple. Only a complete fertility Institute can provide all the treatment options under one roof & chance to select best suitable option.

#### How does a natural conception take place?

- After puberty, a man continuously produces millions of sperm in his testes. Two testes are situated in scrotum. Sperm produced in testes travel through epididymis, vas deference, seminal vesicles, prostate and urethra and are ejaculated in semen.
- Female reproductive organs are situated in her pelvis, vagina is connected to uterus (womb).
- → Two fallopian tubes one on each side are connected to the uterus.
- Far ends of the tubes have finger like projections called fimbria. They are placed nearer to the ovary to catch any released oocyte. A women has two ovaries one on each side, which produces oocyte (egg), every menstrual cycle, alternatively. This occurs under the influence of FSH & LH hormone released from pituitary gland situated in brain. Mature oocyte egg is released from one ovary (follicle rupture) and is captured by fallopian tube. Hormones have effect on endometrium also and prepare it for embryo implantation.
- Mouth of uterus cervix secretes plenty of watery fluid to ease transportation and storage of sperm under the influence of hormones produced by developing follicle.
- If couple has intercourse during this time and semen is discharged in vagina, the motile sperm travel through receptive cervical fluid, uterus to fallopian tubes.
  - → Only one sperm fertilizes one egg in fallopian tube, which results into an embryo. Embryo develops in fallopian tube for five days and becomes a blastocyst.
  - → Fallopian tube transports blastocyst to the uterus, where it implants and develops as a pregnancy.
  - → If pregnancy does not occur, hormone production reduces and the endometrium is shaded off, which is called menstrual cycle period. A new cycle of events starts again.
    - → Thus for successful conception it is essential to have good hormone production, egg development, egg release, egg capture, egg transportation, fertilization & embryo development in female partner. It is equally important for a male partner to have proper intercourse, sperm transportation, good sperm quality, good sperm count, good sperm motility & good fertilizing capacity. This complex process in inter related & dependent on

harmonic function of every event hence timing of all the events is equally important. If anything goes wrong anywhere, the entire harmony breaks & the chances of conceiving are reduced or lost.

• Unlike most other animal spices a woman having regular menstrual cycle and egg production, gets a chance of conceiving once in every menstrual cycle. If a lady does not conceive in one menstrual cycle, she can try to conceive in the next menstrual cycle.

Because of this physiology of conception, treatment of infertility can be done every Menstrual cycle.

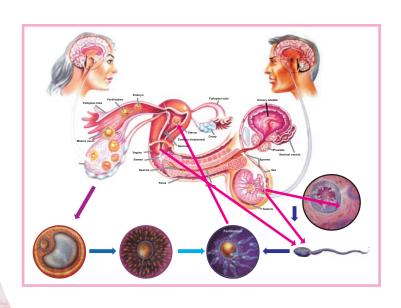
## 3. What is In Vitro Fertilization - IVF?

I - In

V - Vitro

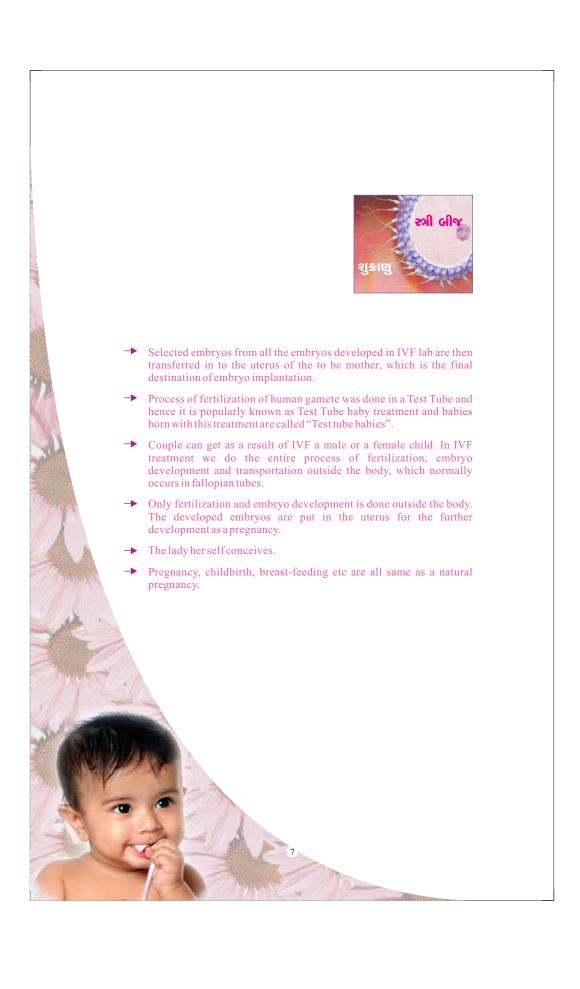
F - Fertilization

When the process of fertilization of oocyte (egg) by the male gamete sperm is done outside the body (In Vitro), it is called "In Vitro Fertilization" IVF Test Tube Baby process.



➤ In "In Vitro Fertilization "IVF treatment, oocyte - egg is taken out of the female body, sperm is obtained from the male partner and fertilization is done in the IVF Lab out side the human body.

The fertilized egg and resulting embryos are allowed to develop up to two to five days.





Only in IVF we can ensure fertilization, embryo formation and placement of selected embryos into the uterus of the mother.

The child born with IVF treatment can be male or female.

We can overcome all predictable or predicable obstacles in the process of fertilization, embryo development and embryo transport in the body of a mother and we can ensure placement of selected embryos at their final destination of implantation-Uterus.

This ensures better chance of conceiving by IVF compared with any other infertility management treatment.

#### How IVF "Test tube baby treatment" is superior?

- → We can know the quality of Oocyte egg.
- → We can know the quality of sperm.
- → We can know whether fertilization occurs or not.
- → We can know the number of embryos and quality of embryos.
- → We can select the best embryos for transfer, out of the total lot of available embryos.
- → We can cryopreserve (Freeze) the extra embryos for future use.
- One of the major advantage of the IVF, we can use Intra Cytoplasmic Sperm Injection ICSI to achieve fertilization.

## 5. Intra Cytoplasmic Sperm Injection (ICSI)

The process of fertilization injection of one sperm into the cytoplasm of one oocyte is called **Intra Cytoplasmic Sperm Injection - ICSI** 

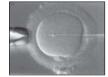
I = Intra

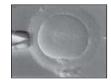
 $\begin{array}{ll} \textbf{ICSI} & C = Cytoplasmic \\ S = Sperm \end{array}$ 

I = Injection









#### At present this is the best available method of fertilization in IVF.

We need only one sperm for fertilization of one oocyte.

Fertilization is done we may get better embryo and better chance of pregnancy.

#### ICSI requires very high technical knowledge and skill.

"Bavishi Fertility Institute" offers the best ICSI performance as ICSI is performed by **Dr. Falguni** herself and under her direct supervision and still "Bavishi Fertility Institute" is not charging separately for ICSI.

The couple has to pay only the cost of disposables and consumable used to do ICSI procedure.

Hence couple saves Rs. 5000 to 10000 per ICSI cycle.

#### **Advantages of ICSI:**

Fertilization can be achieved with sperm having compromised fertilization capacity also, like

- Sperm with zero motility, even 100% nonmotile.
- Sperm with compromised motility Asthenospermia.
- Sperm with abnormal shape Teretospermia
- Less no. of sperm Oligospermia
- Sperm retrieved from testis
- Sperm retrieved for epididymis.
- Frozen semen.

## 6. What is the chance of conceiving in IVF?

What is the chance of pregnancy per one attempt of IVF treatment done at Bavishi Fetility Institute?

#### 

- Best pregnancy rate in India.
- Success rate is comparable to the success rate of the best IVF centers of the world.
- → Same pregnancy rate during every month/season of the year.
- → Consistent pregnancy rate since 9 years.
- → Hundreds of healthy babies born.
- → The most important factor, which affects the chance of conceiving, is age of female partner. Hence younger the age of female partner, better the chance of conceiving.
- → Multiple factors can affect success rate in an individual couple. Hence you can discuss with doctor regarding your own chance of conceiving per cycle.
- → The success rate above success rate is for one attempt of IVF treatment.

If the first attempt is not successful, the couple can try second or third attempt also. Couple can try IVF treatment again for getting second pregnancy also. There is no limit to the maximum numbers of the IVF cycles a couple can try.

Just like a natural conception, In IVF pregnancy and child birth are same as anatural pregnancy that means the lady can have miscarriage, other pregnancy complications i.e. high blood pressure, premature birth etc and problems at child birth i.e Breech presentation, cesarean delivery etc.

The pregnancy conceived with IVF has a chance of miscarriage similar to any natural pregnancy, which is approximately 15% per pregnancy.

## 7. What is the process of IVF treatment?

- 1. Pre IVF work up
- 2. Treatment for producing more numbers of eggs
  - (2a) Down regulation
  - (2b) Stimulation
- 3. Fertilization in IVF lab (Out side the body)
  - (3a) Take out the eggs.
  - (3b) Collect sperm
  - (3c) Fertilization and embryo culture.
- 4. Embryo transfer
- 5. Blood test for confirmation of pregnancy.

#### 1. Pre IVF workup:

Before starting IVF we check for any factors, which may adversely affects on fertility of the couple or outcome of IVF treatment.

If the reports are already done and are reliable they are not done again.

#### For Husband

- Routine blood test
- Semen examination
- Other tests if necessary

#### For wife

- Blood test
- General health check up
- Hormone test
- Hysteroscopy -Examination of Uterus from within with a hysteroscope
- Any special test if needed.

#### 2. Producing more eggs in the female partner.

Advantages of producing more eggs.

- → We get more embryos
- → We can select embryos
- → We can get better pregnancy chance by transferring more embryos
- → We can freeze additional embryos for future use.

Protocols for stimulating ovaries to produce more eggs are of two types.

- A. Long protocol down regulation protocol
- B. Short protocol Antagonist protocol

#### A1) Down regulation - Hormone control

- Eggs are produced in female body due to the effect of gonadotropin hormones.
- We have to give higher dose of gonadotropin hormone.
- If gonadotropins produced by female and gonadotropins given from outside both act on ovaries it may be difficult to predict the response and control the process.
- To avoid this, we stop gonadotropin production in female body temporarily for 15 days it is called down regulation.
- In this situation down regulation eggs are produced by the effect of gonadotropins given from outside, hence we can control egg production with dose management.
- Treatment becomes more successful, controlled and safe.
  - → Down regulation injections can start from approximately day14 to day 25 of the menstrual cycle as per the advice.
  - → Injections are taken with a very small, fine needle just below the skin (sif as patients of diabetes takes insulin).
  - → Injections are pain less
  - Patient can take injection herself or husband can inject very easily.
  - → A patient gets one period when down regulation is achieved.

A2) Stimulation: Gonadotropin injection for producing more eggs.

- Visit Bavishi fertility Institute on day 2-3-4 or 5 of the period.
- Confirmation of down regulation is done by sonography and blood test.
- Gonadotropin injections are started for stimulation.

#### **B)** Antagonist Protocol

"Antagonist" is a different drug, which has a similar effect, just like down regulation drug. It acts faster and the effect goes of faster hence if we use antagonist the treatment becomes more faster and earlier.

As we do not have to do conventional down regulation in antagonist protocol it saves 7 to 12 days of down regulation. The entire IVF (In Vitro Fertilization) cycle can be completed during one menstrual Cycle.

#### Advantages of Antagonist protocol: -

- Treatment is not started previous menstrual cycle.
- Patient has to take injection for less number of days.
- Treatment is completed faster.

#### Disadvantages of Antagonist protocol: -

- Treatment has to be done as per the date of menstrual cycle
- There is less flexibility in time schedule
- Slightly more expensive.
- Chance of conceiving is almost the same as down regulation protocol.

#### 3. Fertilization in IVF Lab (In Vitro fertilization)

#### 3a. Taking out of eggs from ovaries: Ovum pickup

- → This is done under sonography vision.
- → Patient is anaesthetized for a few minutes.
- → It is painless.
- → Patient can go home in a few hours.

#### 3b. Fertilization of eggs with sperm

- → Fertilization of oocyte and embryo culture is done with world best equipments, disposables and culture media.
- → Fertilization is done with ICSI (Intra Cytoplasmic Sperm Injection)
- → Fertilization is checked after 20 hrs.
- → How many embryos are formed and their quality is evaluated after 48 hrs.
- Selected embryos are transfered in to the uterus of the mother.



- → Highest quality accuracy.
- → We insist upon using the material supplied by the same manufacturers those are supplying materials to our affiliated institute The Diamond Institute of Infertility and Menopause, USA
- → This distinguishes us in achieving the best pregnancy rate.
- → Fertilization is done in the IVF lab at Bavishi Fertility Institute.
- → Under the direct supervision of Dr. Falguni, our skilled qualified and experienced embryology team takes care of egg, sperm, process of fertilization and embryo culture.
- → Care taken at this stage and quality of material used is the most important factor in deciding the out come of the entire treatment.

#### 4. Putting the embryos in to the uterus.

- → It is painless.
- → It takes only two minutes.
- → Patient can go home after 2 to 3 hours of rest at the institute.
- → Patient can travel home by any mode of transportation for examples i.e. Train, Auto, Bus, plane etc.
- → All routine daily activities are permitted like visit to toilet, bath, walking etc.

#### After embryo transfer:

It is a wrong belief that excessive rest, complete bed rest or total avoidance of work and routine activities helps in achieving best chance of pregnancy. You can do all your routine daily activities like bath, toilet visits, cooking, routine house cleaning, shopping, going out for visiting temple or social functions, watching TV, walking, driving of two wheeler or four wheeler, traveling by auto, bus, or train.

#### If you are working: Can do all activities while sitting or standing. About your diet:

- You can take all eatables which you consume routinely. You can take tea, coffee, milk, fruit juices
- Daily staple food like Roti, Dal, Rice, "khichadi", all vegetables.
- Easily digestible non-vegetarian food if you are a non-vegetarian.
- There is no specific food which assures or avoids pregnancy.
- Avoid difficult to digest food, very spicy or very heavy food which does not suit you & eat as per your routine food habits.
- Avoid "out side" food & if you have to consume it, choose the most hygienic place & healthy food.

**Medicines:** Pregnancy supporting medicines are prescribed. Continue all other medicines which you might be taking.

**Avoid:** Excessive exersion, stress, fatigue, jerky movements, intercourse, addictions.

#### How many embryos are transferred? (Put back)

Usually minimum three (3) & maximum five (5) embryos are transferred to get the optimum chance of conceiving.

#### If we put more embryos,

#### Advantages

- More chance of conceiving
- More chance of twins if you desire so

#### Disadvantages

- More chances of implanation of 2, 3, 4 embrtos
- If we reduce multiple gestation to 1 or 2 - 10% abortion risk is there.

#### If we have extra embryos after E.T.

- We freeze & preserve them
- If fresh attempt is not successful, frozen embryos can be used.

#### Blood test for confirmation of pregnancy.

- Done between day 13 & 16 after E.T. on two separate days.
- Whether pregnancy is there or not is confirmed by blood test.
  - Blood for testing can be sent through a courier. Patient does not have to come to the hospital.

# 8. How many times patient has to visit Bavishi Fertility Institute for Test Tube Baby Treatment?

- → 1<sup>st</sup> Visit : (flexible)
  - Down regulation day 14 to day 25 of cycle
  - TVS
  - Cervix Trial
- → 2<sup>nd</sup> Visit:
  - Day 2, 3, 4, or 5 of period after down regulation
  - TVS
  - Blood test
  - Start stimulation injection
  - → 3<sup>rd</sup> Visit:
    - To check development of follicles or eggs
    - TVS
    - Change the dose of injection if needed
  - → 4<sup>th</sup> Visit:
    - Confirm the full development of follicles or eggs
    - TVS
    - Decide the date of ovum pick up
    - $\rightarrow$  5<sup>th</sup> Visit:
      - Ovum pick up taking out of eggs done under anesthesia by TVS
      - 3 4 hrs stay at hospital
      - Husband has to give semen
      - $\rightarrow$  6<sup>th</sup> Visit:
        - Embryo transfer
        - 2 3 hrs of rest

## 9. What is the expense of an IVF treatment?

#### Expense of IVF treatment can be divided in 4 parts.

- 1. Professional fees
- 2. Material used in IVF lab
  - 2a. Material used for taking out the eggs, fertilization and embryo
  - 2b. Material used for ICSI if we do ICSI
- 3. Cost of drugs.
  - 3a. All miscellaneous drugs used and blood test etc.
  - 3b. Stimulation injections Injections to produce more eggs.
- 4. Any special or additional services required or voluntarily opted for.

#### 1. Professional fees

It includes the fees for professional services offered from the beginning of IVF treatment till confirmation of the outcome by blood test. All examination, sonography, ovum pick up, embryo transfer etc are included in these approximate 40 days treatment.

It also includes highly technical procedure of ICSI.

#### 2. Cost of material used

- **2a.** Cost of material used for ovum pick up, fertilization and embryo culture.
- → This includes all the material used right from specialized needle used for ovum pick up till embryo culture and transfer. We always use highest quality products from world-renowned suppliers.
- \*\* To show less cost of treatment some institutes quote less expense of lab material initially, then they prescribe them from outside at the time of treatment. Whereas at Bavishi Fertility Institute all these expenses are included in the estimated cost.
  - → Patient had an advantage of convenience, low cost and assured availability of world best products.
    - → We import best embryo culture media from world renowned companies.
    - → We insist on using the same batch material being used at our affiliation Institute " The diamond institute for infertility and menopause USA"

#### 2b. Cost of material for ICSI

This cost is only if ICSI is used for fertilization.

ICSI is the best available method of fertilization. We do not charge any additional professional fees for ICSI. The cost is for consumables like very fine injection pipets and specialized culture media.

#### 3. Medicine expense

#### 3a. Miscellaneous drugs.

It includes all medicines used except for injections for producing eggs stimulation drugs, anesthesia drugs.

#### 3b. Cost of injections used to produce more eggs.

- → If we have more eggs we have more chance of pregnancy. To produce more eggs patient has to take injections. How many injections she takes and for how many days, decides the actual no. of injections used and the ultimate cost.
- This cost may be different in every individual. Hence it should be understood properly.
- → One injection means 75 International Units.
- Depending on age and other points patient may has to take 3 to 6injections daily.

[All injections are mixed in one syringe. Hence the actual injection taken is 1 per day, but for calculation of cost the no. of injections consumed have to be counted.]

Usually a patient has to take these injections for 8 to 10 days. Different types and makes of injections are available.

### Total cost of stimulation injections

Total no. of injections consumed X Cost of 1 amp of selected injection = Total cost of stimulation injections

## 4. Any special or additional services required or voluntarily opted for.

If you need any additional or special service or treatment.

- > PESA TESA
- > Medical or health related problems etc.

Continuous research in the field of ART is constantly improving chance of conceiving per one treatment cycle. Patient can avail this at a little additional cost.

- > Assisted hatching
- > Blastocyst transfer
- > Cumulus added transfer
- The above-mentioned cost does not include following things.

Pre IVF work up

- Semen freezing if done.
- Anesthesia charges and drugs.
- Embryo freezing if done.
- Any additional unexpected treatment to avoid or treat complications if needed.

Total expense of one attempt of IVF treatment Can be approximately Rs. **50,000 or more.** 

Bavishi Fertility Institute is one of highest numbers of IVF cycle performing institutes of India. Very high no. of cycles done, in house team of expert and dedicated professionals and all facilities under one roof at Bavishi Fertility Institute, offer the best success rate at lowest cost. The lowest cost of an IVF cycle and highest success rate offer dual advantage to the patient.

#### 10. Conclusion

#### To conclude,

- We can place the best-selected embryos, in desired no. at their final site of development in IVF treatment only which is not possible in any other type of treatment offered for infertility.
- Hence IVF offers much better chance of conceiving in one attempt of treatment compared with one attempt of any other treatment, for any patient.
- Treatment is simple. There is no operation, stiches, admission, night stay in hospitals. Risks or side effects are negligible.
- Couple does not have to stay at Ahmedabad over night during the course of treatment. Only 5 to 6 visits to the institute are required. 3to 4 hrs of stay at the time of ovum pick up and embryo transfer are enough.
- Husband is required only once to give his semen. All other visits, wife can come alone or with any relative.
- Lesser the age of female, lesser the medicine used lesser the cost and higher the chance of conception.

As the best fertility Institute of India, we promise you to give the best.

We are always with you.