

## ARTIFICIAL INSEMINATION FACT SHEET

### Artificial Insemination

Artificial insemination (AI) involves the introduction of sperm into the female reproductive tract by means other than sexual intercourse. AI is a fairly easy and painless procedure that can be an effective treatment for certain types of infertility. It is considerably less complicated and expensive than procedures such as IVF with ICSI so is often preferred as the first line of treatment in appropriate cases. Artificial insemination is usually done using a thin tube (catheter) through which sperm can be deposited into the vagina (vaginal insemination), cervix (cervical insemination or ICI) or inside the uterine cavity (intrauterine insemination or IUI). Vaginal and cervical inseminations are simple to perform and no special preparation of the sperm is required. But, since semen contains a hormone that causes marked uterine cramping, it must not enter the uterine cavity. Normally, the cervix prevents semen from entering the uterus; only sperm can penetrate the cervical mucus. Because the cervix is bypassed by an IUI, the sperm must be separated from the semen through a procedure called a "sperm wash" before being inseminated into the uterus.

The advantage of intrauterine over other types of insemination is that a much higher sperm concentration enters the upper female reproductive tract thus increasing the probability that one will bind to and fertilize an egg. In fact, pregnancy rates are higher with IUI as compared to cervical insemination. For this reason, cervical insemination is performed rarely, now. IUI is the preferred method for all indications. These indications include:

- low sperm motility or mild oligo- or teratospermia (oligo = low sperm count, terato = low normal sperm morphology)
- unexplained infertility when used in conjunction with ovulation stimulating drugs.
- retrograde ejaculation
- sexual dysfunction
- cervical deformities
- poor cervical mucus

Intrauterine insemination can be done in either natural or stimulated cycles. Ideally, the insemination would be performed at the same time the egg is released from the ovary. There are a variety of methods to time insemination to coincide with ovulation. The ovulation predictor kit (OPK) identifies the LH surge but it gives only an approximate time of ovulation. With this method, two inseminations spaced a day apart may help to cover the broad range of possible ovulation times. Careful monitoring of the ovarian follicle by ultrasound with an injection of hCG (an LH-like medication that "triggers" egg release) to produce ovulation when the follicle(s) reach a mature size more accurately times the IUI. This method is most useful during a stimulated cycle but can be utilized in natural cycles also. NCRS prefers the careful blood and ultrasound monitoring method since it allows us to perform the IUI as close to ovulation as possible and usually a single insemination is necessary.

### Side effects

- Discomfort from speculum placement.
- Discomfort from manipulation of the cervix to achieve proper catheter placement.
- Scant uterine or cervical bleeding.

### Risks

IUI is a frequently used and easy to perform procedure that is relatively non-invasive and, therefore, safe. But, as with all medical procedures, some risk is associated with its use. Reported risks are described here:

**Infection:** Bacteria or viruses present in semen or the vagina may be transferred into the uterus through insemination. Some of these organisms may be capable of causing an infection in the uterus or tubes that might require antibiotic treatment. This is uncommon occurring in fewer than 2 out of 1000 women undergoing IUI treatment.

**HIV transmission:** To date, no known cases of HIV transmission have been reported when using frozen and quarantined sperm. Because transmission can occur when using fresh sperm for IUI, physicians should not perform insemination using fresh semen unless the "donor" is the husband or a mutually monogamous partner of the patient. In all other situations, the semen must be frozen and quarantined for 6 months and a subsequent HIV test on the donor is negative (see Donor Insemination Information Sheet).



**Prostaglandin reaction:** Human semen contains a family of hormones called “prostaglandins”. Prostaglandins that gain access to the uterine or abdominal cavity can cause severe uterine cramping, nausea, vomiting, diarrhea or even fever. Though sperm washing effectively removes prostaglandins from the sperm sample, occasionally small amounts may remain that could cause adverse symptoms in particularly sensitive women.

**Insemination of incorrect sperm sample:** The medical literature contains case reports of women receiving the wrong sperm specimen during insemination. Though this is exceedingly rare, we take every precaution to avoid this serious error. We ask that every specimen brought to us for insemination be clearly labelled with the identity of the producer. We ask all patients to allow us to attach a photograph of themselves to the electronic medical record for identity purposes. We then label each specimen with the male and female partner’s name, date of birth and the patient’s ID number. Prior to the insemination, we ask you to verify the names on the prepared specimen.

**Allergic reactions:** Rarely, an ingredient in the washing medium or catheter or even in the sperm sample itself may cause an allergic reaction.

**Trauma:** Occasionally, instruments in addition to the speculum may be required to gain access to the uterine cavity. Normally, this is painless and uncomplicated. Rarely, one may experience pain and/or bleeding. If severe, the cervix may require repair at the time of insemination.

## Probability of Success

Intrauterine insemination is frequently employed as a treatment for infertility. Its ease of use and low cost make it an attractive alternative. However, IUI is not always successful in producing pregnancy.

The degree to which insemination might improve the chance of conception depends largely on the underlying problem causing the infertility. One of the NCRS doctors will discuss your potential for success with you. **In general, IUI cycles with controlled ovarian hyperstimulation ranges from 10-15% per treatment cycle.** Insemination may not be successful in producing a pregnancy in a single cycle or even after multiple attempts. We recommend reevaluation of your treatment plan if no success has occurred after three cycles of insemination. If concerned, you may request consultation with the physician prior to that time.

Pregnancies resulting from insemination may not always end in a live birth. Miscarriage, ectopic pregnancies, or premature deliveries occur at the same rate as normally conceived pregnancies unless a multiple pregnancy occurs. Depending on the medication used, the multiple birth rate ranges from 5-20%. Without ovarian stimulation, the rate of multiple births is the same as natural conception. Similarly, birth defects occur no more or less frequently than in the general population.

## Alternatives

Treatment alternatives depend on the underlying cause of infertility and one of the NCRS physicians will discuss these with you thoroughly. Options may include IVF, surgery, ovulation stimulation with medications, adoption or discontinuation of treatment. Each of these alternatives has its own set of side effects, risks and success rates. Information sheets are available at the reception desk.