

# Assisted Conception Therapy

## The latest IVF protocols and commonly used drugs

辅助生育治疗  
IVF最新治疗方案与常用药物

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# Assisted Conception Therapy 辅助生育治疗

- Ovulation Induction 促排卵治疗
- Intrauterine insemination IUI-宫腔内人工授精
- IVF IVF-试管婴儿
- IVF plus intracytoplasmic sperm injection  
IVF 结合卵胞浆内单精子注射
- Use of donated gametes or embryos  
使用捐赠的配子和胚胎
- IVF Surrogacy IVF 代孕

# Intrauterine Insemination Indications

## IUI治疗的适应症

- Unexplained infertility 不明原因的不孕症
- Ejaculatory Failure 射精障碍
- Mild Male Subfertility 男性低生育力
- Ovulatory Dysfunction 排卵障碍
- HIV +ve male / HIV -ve female

# IVF, Hope at the end of a long road

## 希望，在漫漫长路的尽头





Pregnancy test

妊娠试验



Luteal support 黄体支持

(2 weeks - progesterone 2周 - 孕激素)



Embryo Transfer 胚胎移植

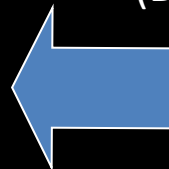
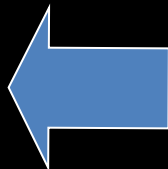
(USS guided, max 2 超声引导, 最多2个)

+/- Cryopreservation 冷冻保存



Embryo culture 胚胎培养

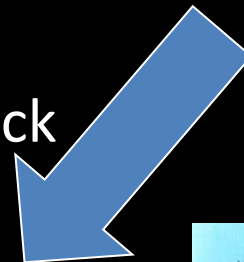
(2-3 days 2-3天)



Fertilisation check

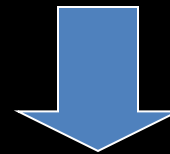
受精 观察

(Day 1 第一天)

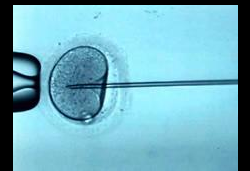


Egg collection 取卵

(sedation 镇静)



Insemination 授精 /  
ICSI 卵胞浆单精子注射



Ovarian stimulation & monitoring

促排卵与排卵监测

(2 weeks 2周)



**IVF**  
**Treatment Cycle**  
**IVF治疗周期**

# Gonadotrophin Stimulation

## 促性腺激素促排卵治疗

- FSH to stimulate ovaries  
FSH 诱导排卵
  - Daily injection of gonadotrophin 每日注射
  - rFSH or hMG
- Pituitary down-regulation to prevent premature ovulation by using 垂体降调节以保护未成熟卵泡
  - Agonists 受体激动剂
  - Antagonists 拮抗剂

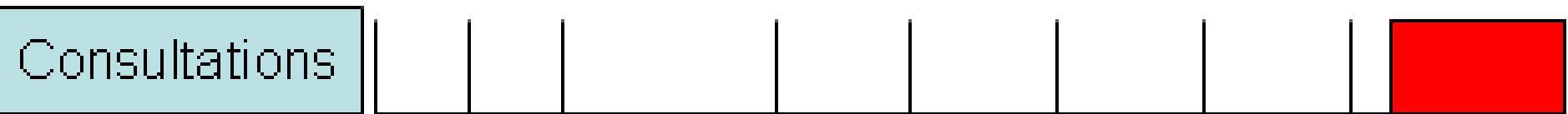


# Protocols for stimulation 促排卵方案

- Agonist – short 受体激动剂 – 短方案
- Agonist – long 受体激动剂 – 长方案
- Agonist – ultra-long 受体激动剂 – 超长方案
- Antagonist 拮抗剂

# Antagonist protocol 拮抗剂方案

Call the unit



咨询

1

2

3

7

10

13

16

27

USS  
FSH/LH/E2

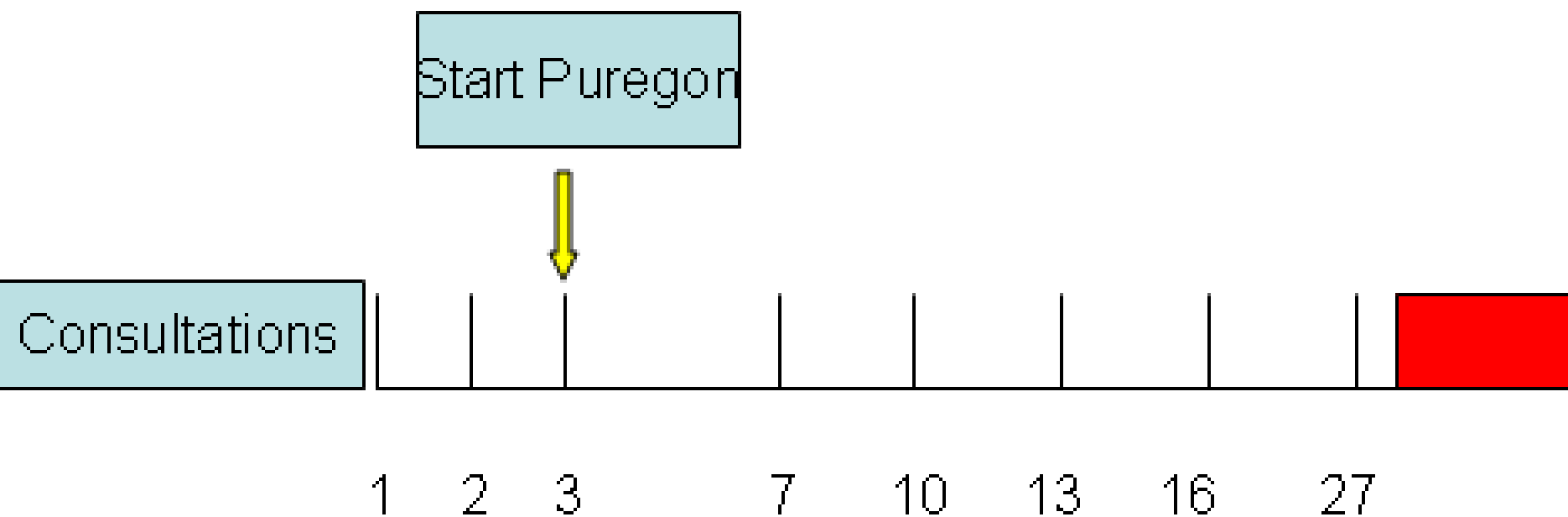


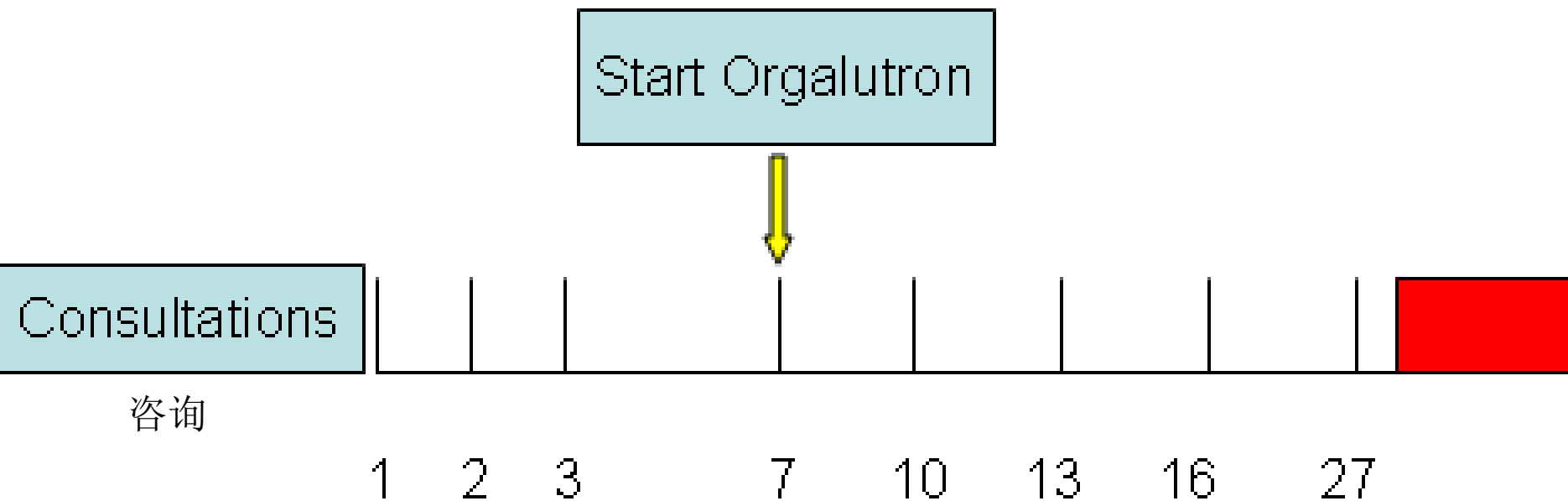
Consultations



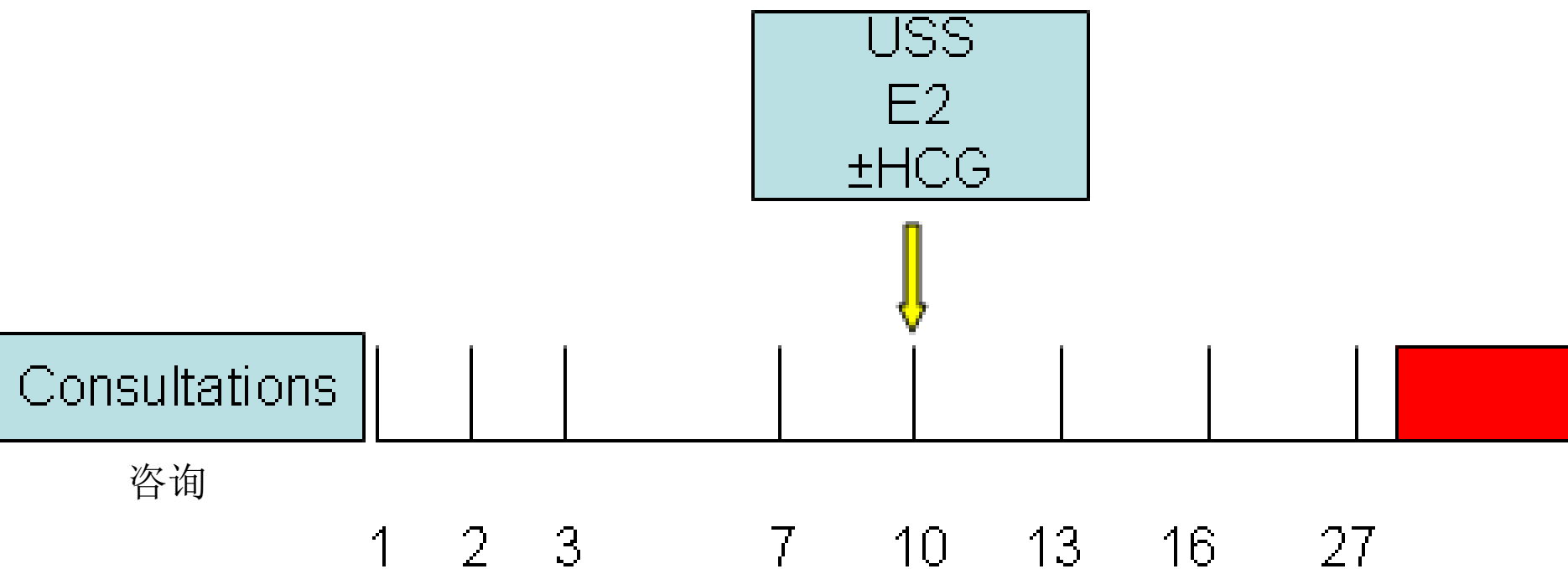
咨询

1 2 3 7 10 13 16 27

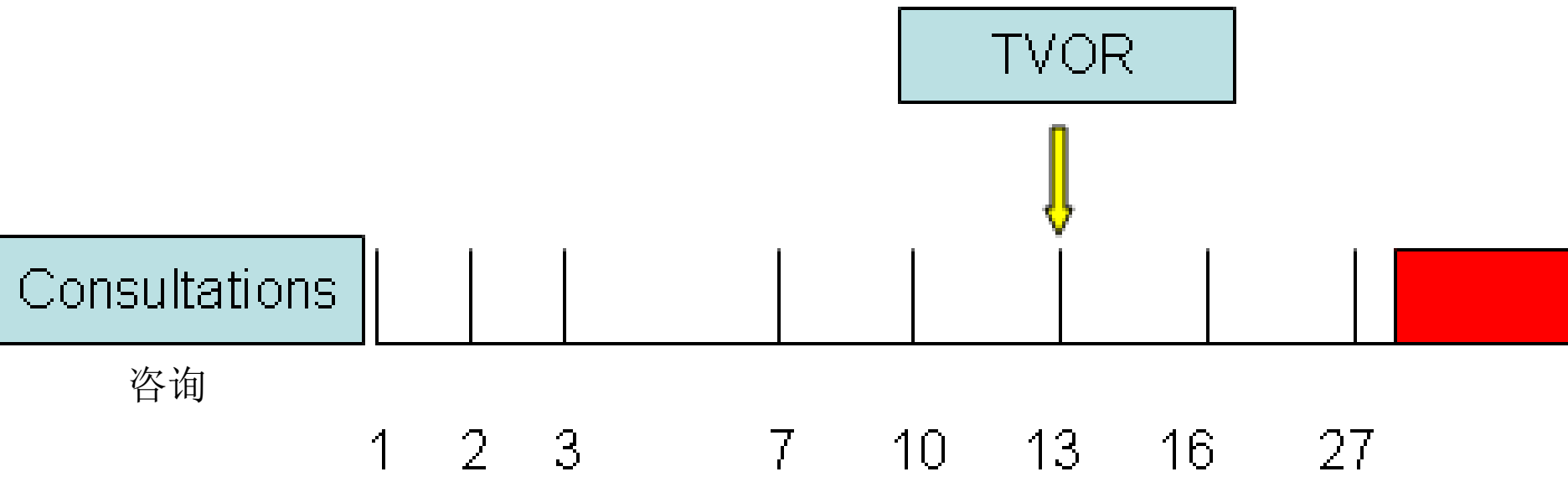




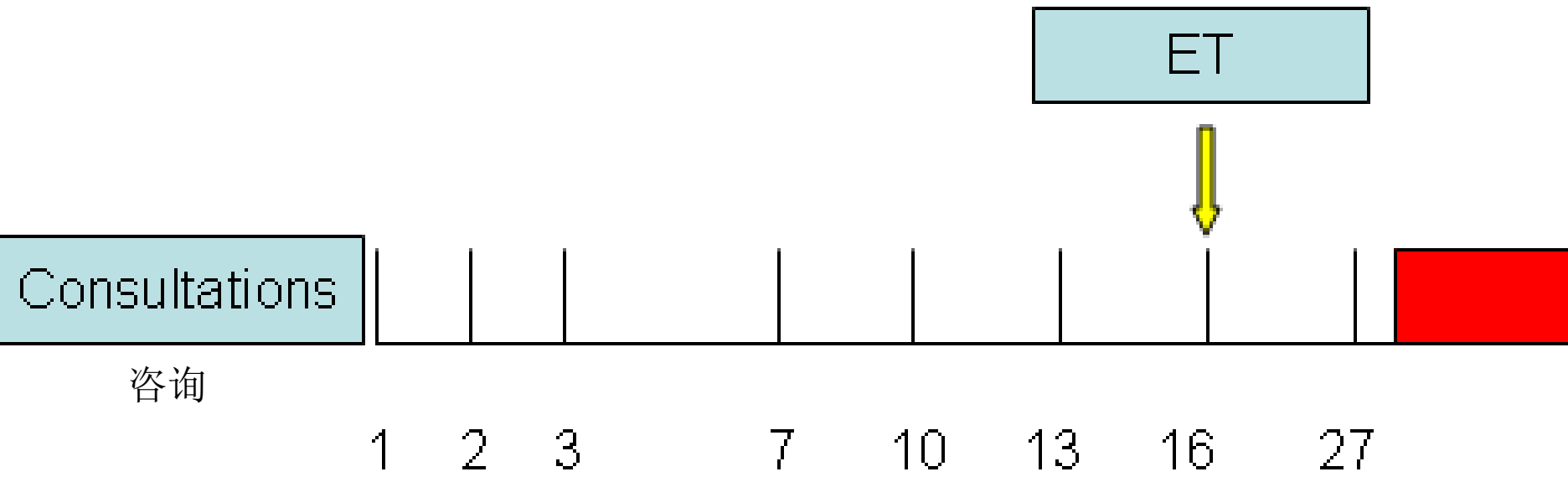
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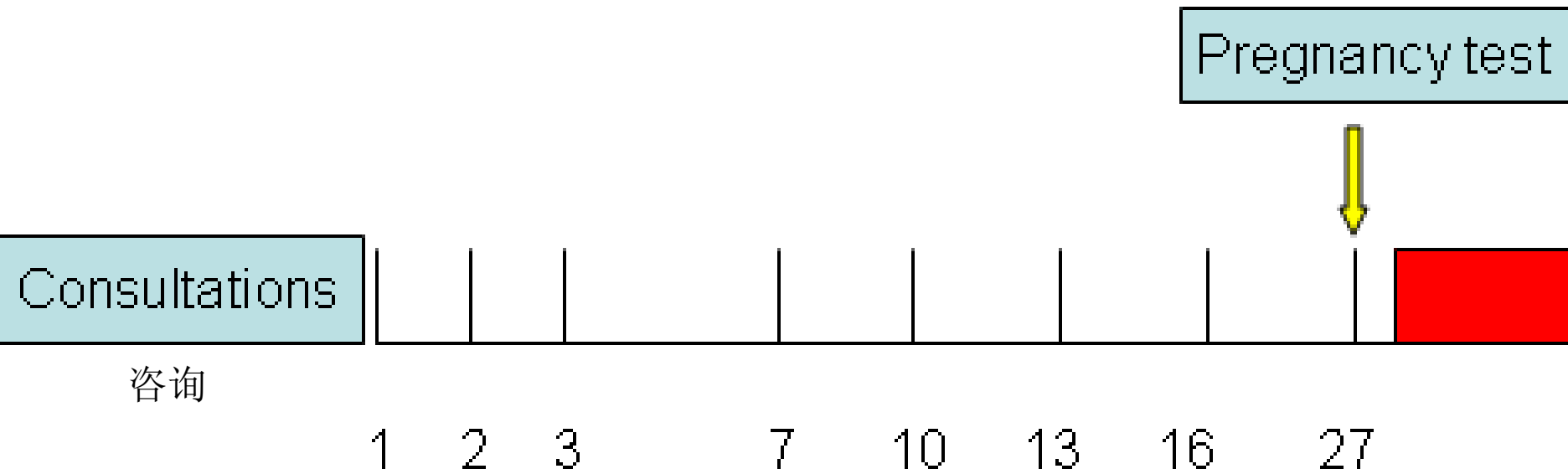
咨询



咨询



咨询



咨询

# Main Advantage of Antagonist Protocol

拮抗剂方案的主要优点

Reduces risk of Hyper-stimulation

减少发生过度刺激的风险

# Long Protocol 长方案

- Standard ovarian stimulation regimen  
常规促排卵方案
- Day 21: GnRH agonist e.g. Buserelin  
月经第21天: GnRH 受体激动剂 (如布舍瑞林)
- Day 3: Gonadotropins 月经第 3天: 促性腺激素
- **Advantages 优点:**
- Allows flexibility 灵活使用
- Coordinate cycle starts 多个主导卵泡生长
- **Disadvantage 缺点:**
- ↑ dose + duration of gonadotropin stimulation  
剂量大+ 促性腺激素持续刺激

# Short Protocol 短方案

- Mainly use for “Poor Responders” and older women

主要用于卵巢反应差和年龄较大的女性

- Start GnRH agonist day 2

月经第2天 —— GnRH 受体激动剂

- Start Gonadotropin day 3

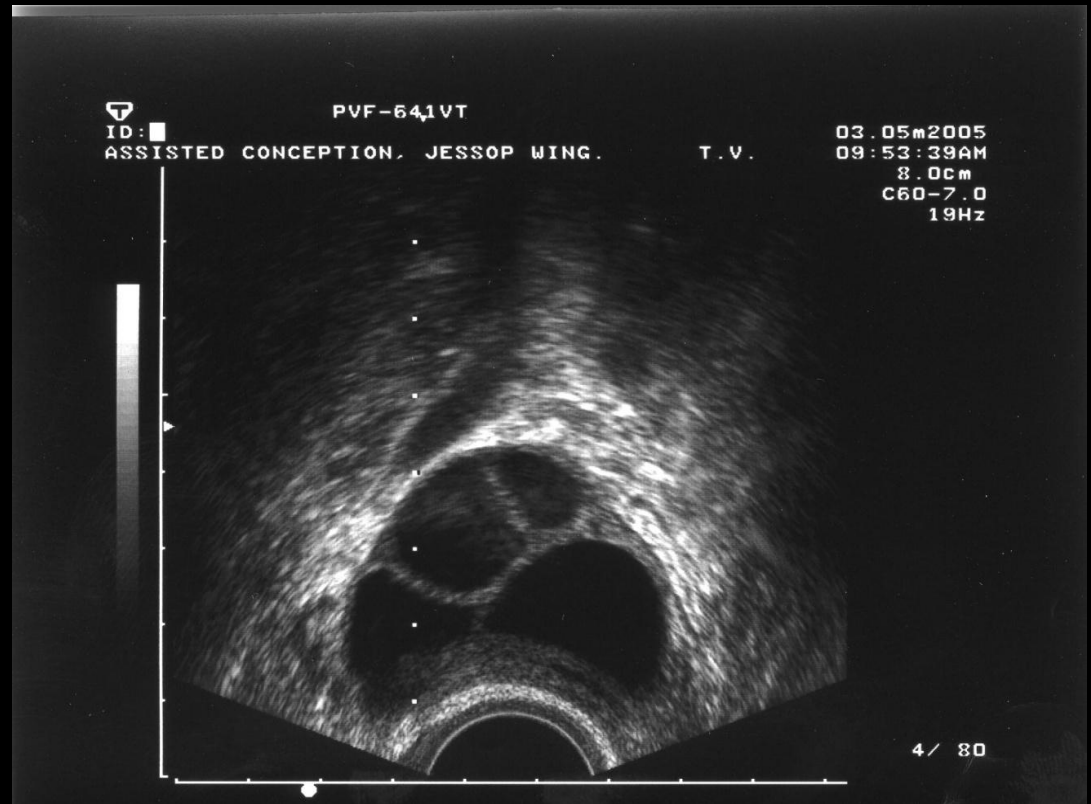
月经第3天 —— 促性腺激素

# Ultra-Long Protocol 超长方案

- To suppress endometriosis or adenomyosis  
抑制子宫内膜异位症
- GnRH Agonists (either Zoladex or  
Decapeptyl or Bueserelin) for 3 months  
GnRH 受体激动剂 (诺雷德, 达必佳或布舍瑞林) 使用3个月
- Then start gonadotrophin stimulation  
然后使用促性腺激素诱导排卵

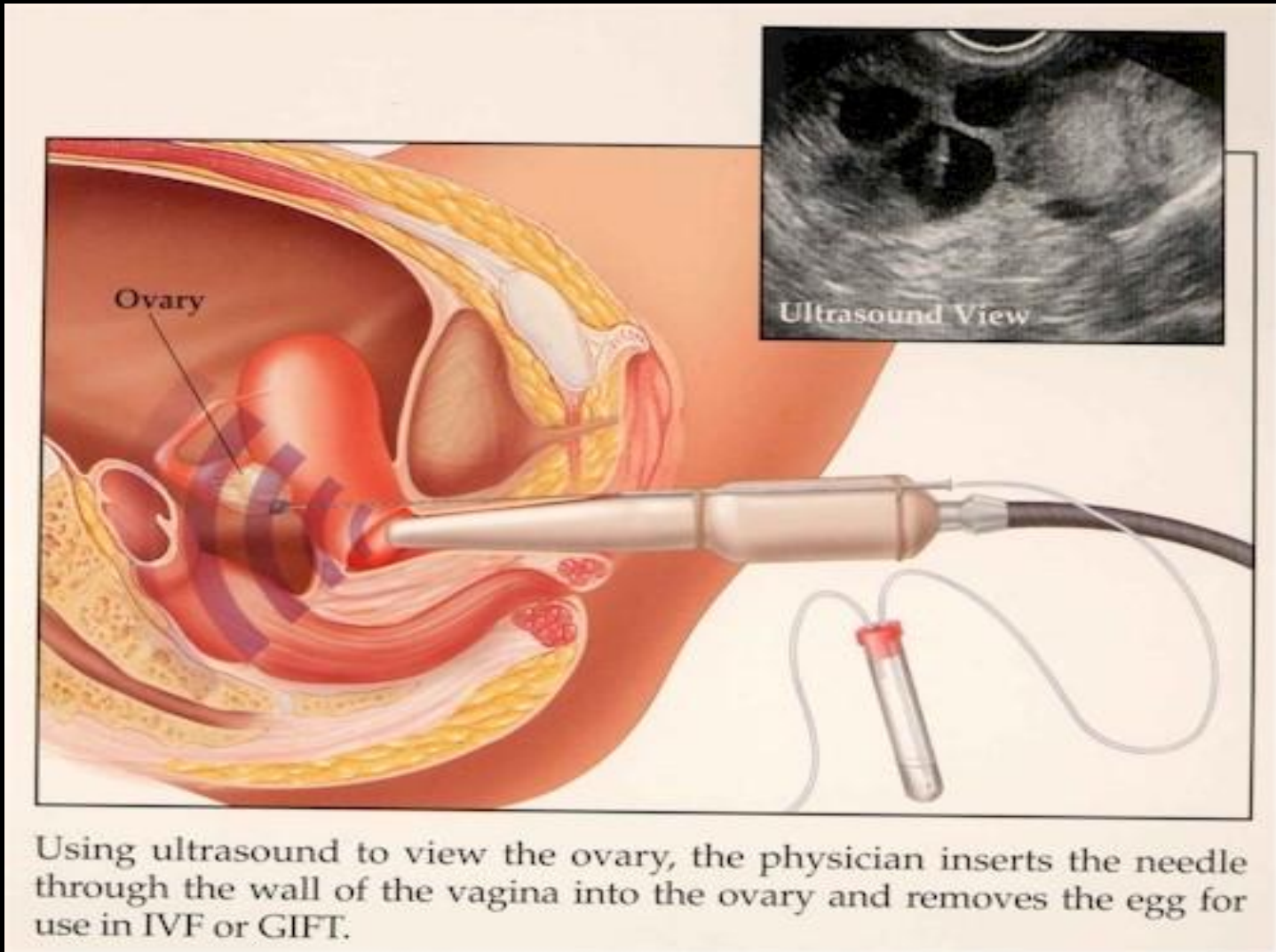
# Ultrasound Monitoring 超声监测

- Measure diameter in 2 perpendicular planes  
测量两个垂直平面的直径
- Mature follicle = 18mm diam 成熟卵泡直径 = 18mm
- Aim for >3 follicles  
目标为超过3个成熟卵泡



# Ultrasound Guided Follicle Aspiration

## 超声引导下取卵



# On day of egg collection 取卵当日

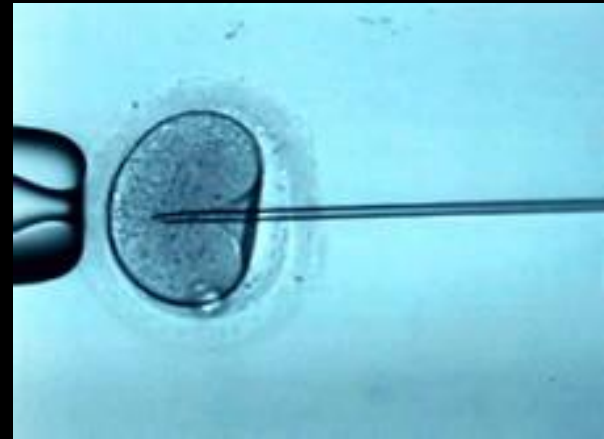
- Sperm sample prepared. Centrifuged on Density Gradient and washed to concentrate motile sperm  
准备精液样本， 密度梯度离心和洗涤并浓缩有活力的精子
- Collect eggs and place into individual drops  
取卵并置于独立的培养皿中
- Inseminate eggs with sperm 卵子受精
- Leave overnight in incubator  
培养箱孵育过夜



# Micromanipulation 显微操作

- ICSI: Intracytoplasmic sperm injection  
ICSI: 卵胞浆内单精子注射
- Injection of a single sperm into an egg  
一个卵子中注入一个精子

- Indications 适应症:
  - Low sperm count 少精症
  - Low motility 弱精症
  - Failed fertilisation after IVF IVF受精失败
  - Azoospermia –Surgical sperm retrieval 无精症 –手术获得精子



# ICSI

- Extremely successful technique for male factor infertility 对男性因素所致的不孕症非常有效
- Slight increased congenital abnormality rate in children born 胎儿先天发育异常的发生率稍有增加
- Concern that a 'Y' chromosome deletion may be inherited and cause infertility in offspring  
需要考虑Y染色体缺陷可能遗传给子代并导致子代的不孕不育

# Fertilisation Check (day 1)

## 受精 观察(第1天)

- Morning after egg collection 取卵的第二天早晨
- Observe each egg and check for signs of fertilisation 观察每一个卵子并注意受精的迹象
- Evening check to look for signs of early development 晚上观察并寻找胚胎早期发育的迹象

# Embryo Development 胚胎发育

- Day 2: 2-4 cells 第2天: 2-4个细胞
- Day 3: 6-8 cells 第3天: 6-8个细胞
- Grade embryos on individual morphology  
根据个体形态对胚胎进行分级
  - Shape of cells 细胞形态
  - Texture of cytoplasm 胞浆结构
  - Degree of cell fragmentation 细胞分裂的阶段

**Pronuclei**  
原核



# Cleavage – day 2

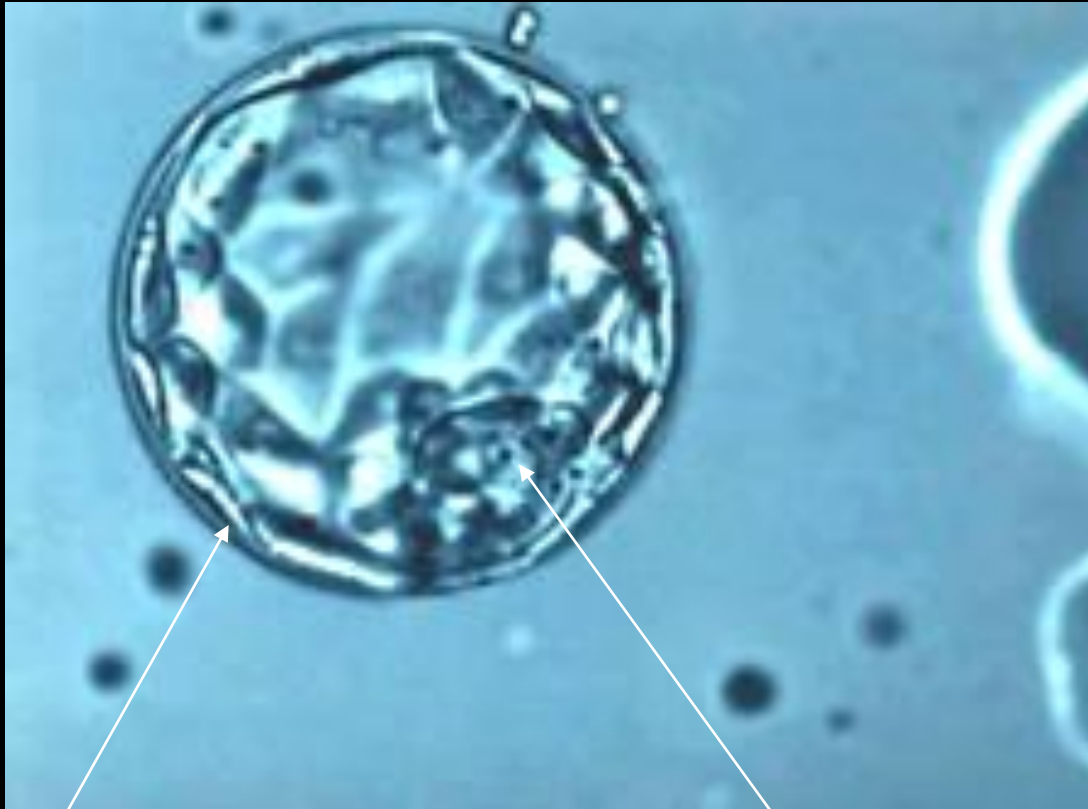
# 卵裂 – 第2天

- Approx 24 hours after fertilisation the ooplasm divides in to two equal halves

受精后24小时左右  
受精卵分裂成2个大小相等的细胞



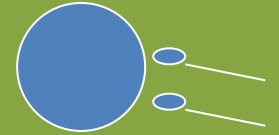
# Blastocyst – Day 5 胚泡 – 第5天



Trophectoderm  
滋养外胚层

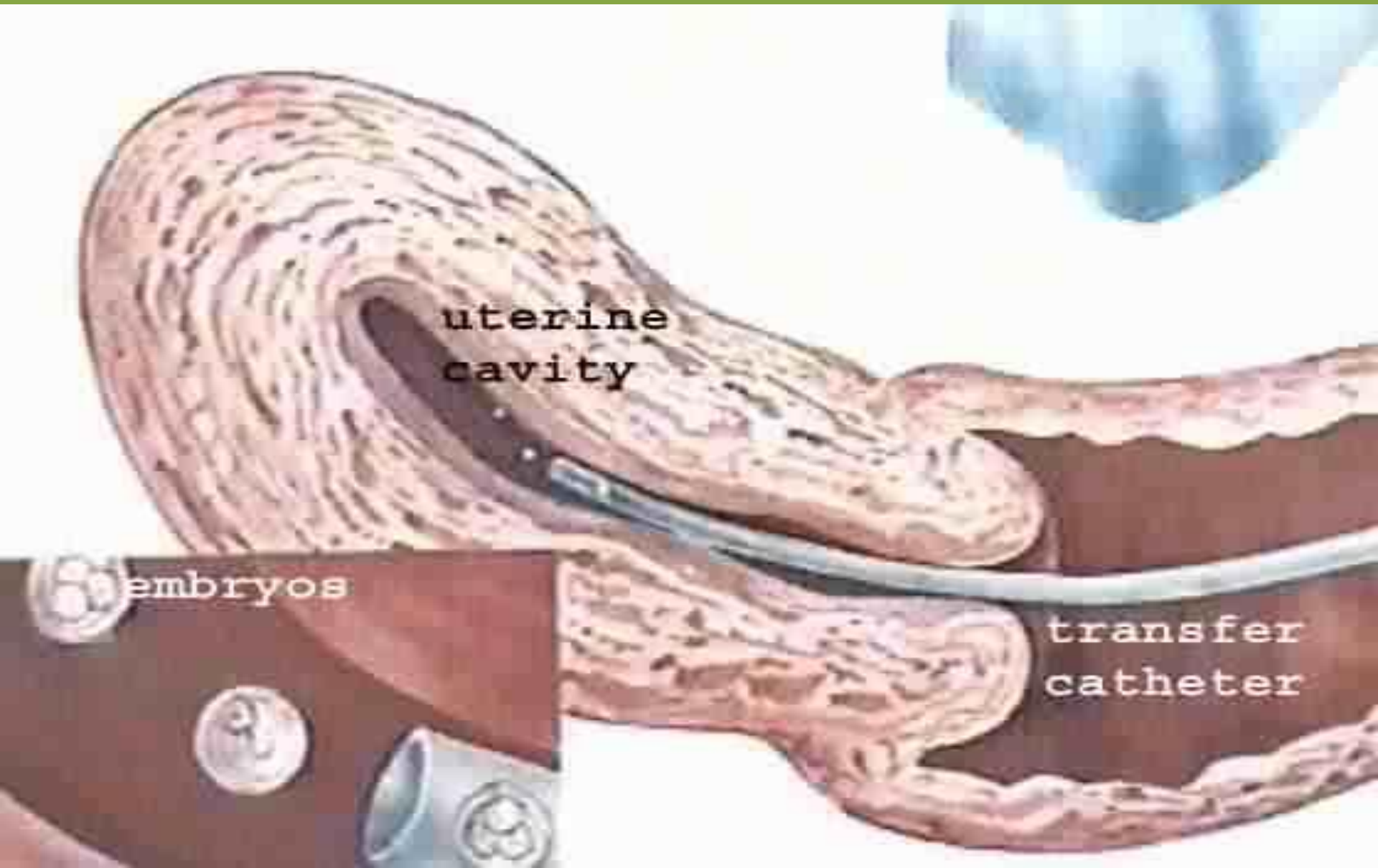
Inner cell mass  
内细胞团

# Embryo Transfer 胚胎移植

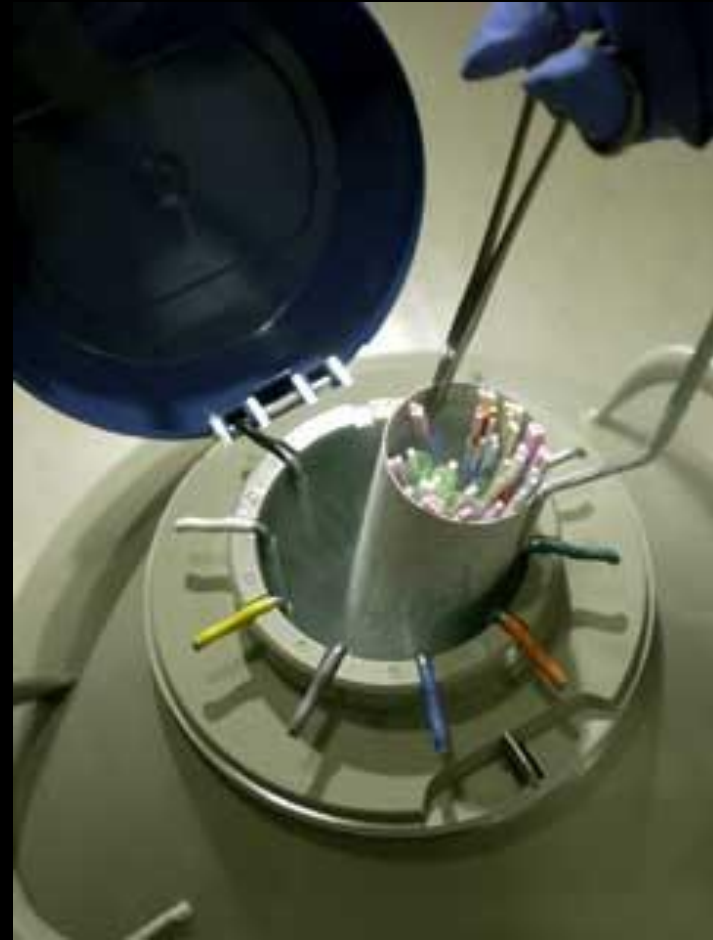


- Select best embryos to put back on day 2, 3 or 5  
在第2,3天或者第5天，选择最好的胚胎
- If any remaining embryos - freeze  
如果有胚胎剩余-冻存起来
- Need to be of good quality and correct stage of development to be frozen  
冻存那些质量好且发育阶段正确的胚胎

# Embryo Transfer 胚胎移植



# Cryopreservation 低温保存



# Success Rates 成功率

- Age 年龄
- Cause of Infertility 不孕的原因
- Previous Pregnancies 生育史
- Length of Infertility 不孕持续时间
- Number of Previous attempts  
既往胚胎移植的次数

# Risks of IVF

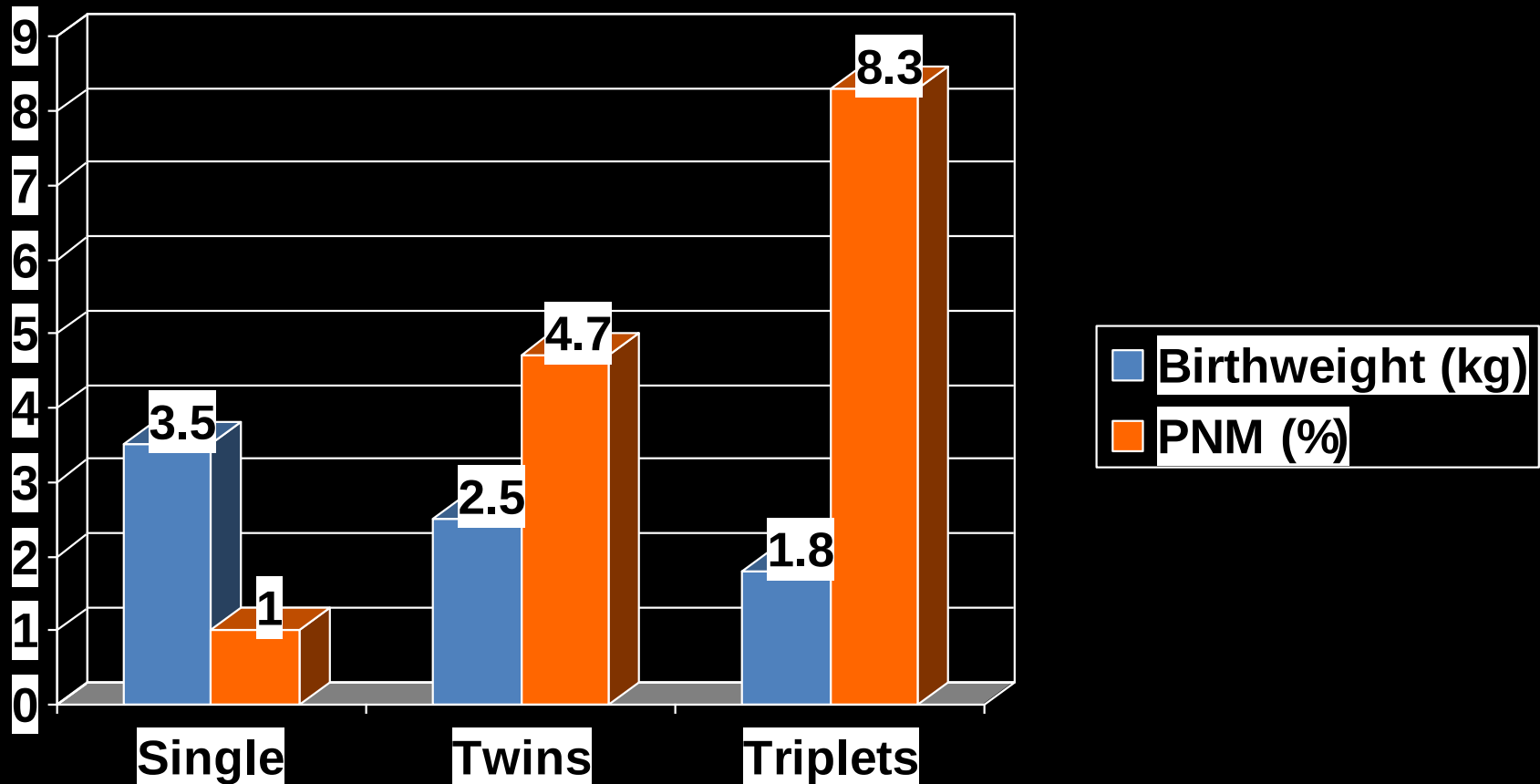
# IVF的风险

- Multiple Pregnancy 多胎妊娠
- Ovarian Hyperstimulation Syndrome (OHSS) Egg Collection 卵巢过度刺激综合征
- Egg Collection 取卵
- Miscarriage 自然流产
- Ectopic 异位妊娠



# Risks of Multiple Pregnancy

## 多胎妊娠的风险





- **Elective single embryo transfer**  
选择单个胚胎进行移植
- **Select best embryo** 选择最好的胚胎
- **Not suitable for everyone, only patients who have a good chance of conceiving**  
并非适合每个人，只适合更有机会受孕的患者
  - **under 37** 37岁以下
  - **able to produce at least one good quality embryo**  
至少可以产生一个质量好的胚胎
  - **undergoing your first or second IVF treatment**  
正接受第一次或第二次IVF治疗

# New Developments in IVF

## IVF的最新进展

### PGD-Preimplantation genetic diagnosis

### PGD-植入前基因诊断

#### Indications 适应症:

- Chromosomal aneuploidy screening 染色体非整倍体筛查
- Carriers of balanced chromosomal translocations  
染色体平衡异位
- Couples with X- linked disorders: Haemophilia, Muscular Dyst  
夫妻X-染色体相关疾病: 血友病, 肌营养不良
- Late-onset diseases: Huntington Disease  
迟发性疾病: 亨廷顿病

#### Limitations 局限性:

- Sufficient number of good quality embryos  
需要足够多的质量好的胚胎
- Cost 费用

# Assisted Conception at The Jessop Wing Royal Hallamshire Hospital

Sheffield Teaching Hospitals NHS Foundation Trust - Centre for Reproductive Medicine & Fertility



Thank you

