

# IVF – a patients journey

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# Learning objectives

- understanding the period before a couple seek IVF treatment
- understanding the local criteria for access to treatment
- investigations and their limitations
- an overview of IVF and early pregnancy care for fertility patients



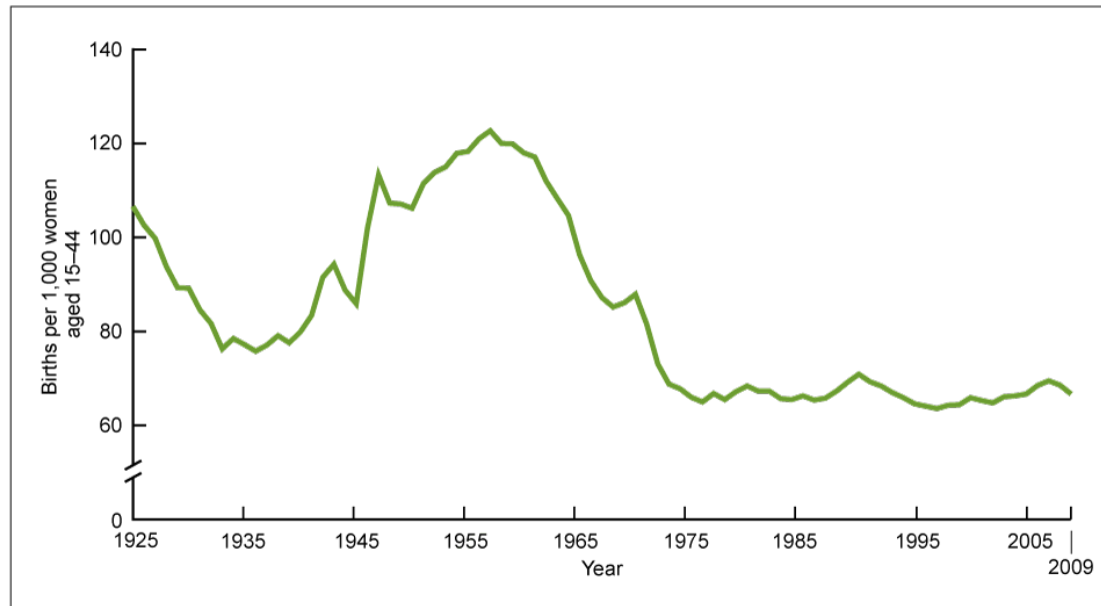
**KEEP  
CALM  
AND  
GET  
PREGNANT**

# Why would you not get pregnant?

- Problems with
  - Sex
  - The cervix
  - The uterus
  - The fallopian tubes
  - The sperm
  - The eggs
  - The embryos

# Are we less fertile?

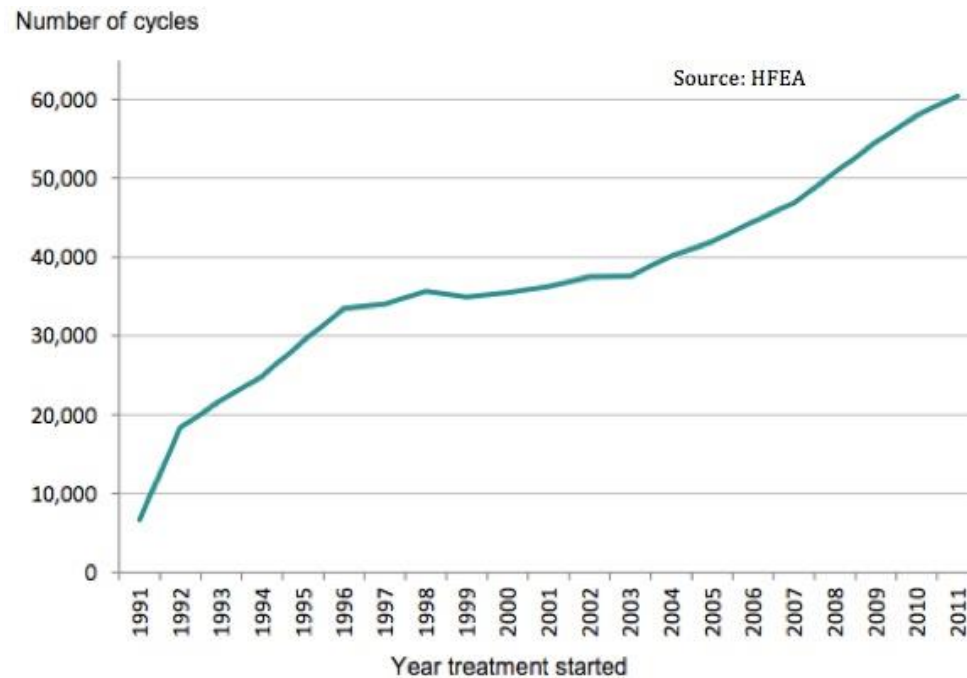
Figure 1. Fertility rate: United States, 1925–2009



NOTES: Data for 2009 are preliminary. Access data table for Figure 1 at: [http://www.cdc.gov/nchs/data/databriefs/db60\\_tables.pdf#1](http://www.cdc.gov/nchs/data/databriefs/db60_tables.pdf#1).

SOURCE: CDC/NCHS, National Vital Statistics System.

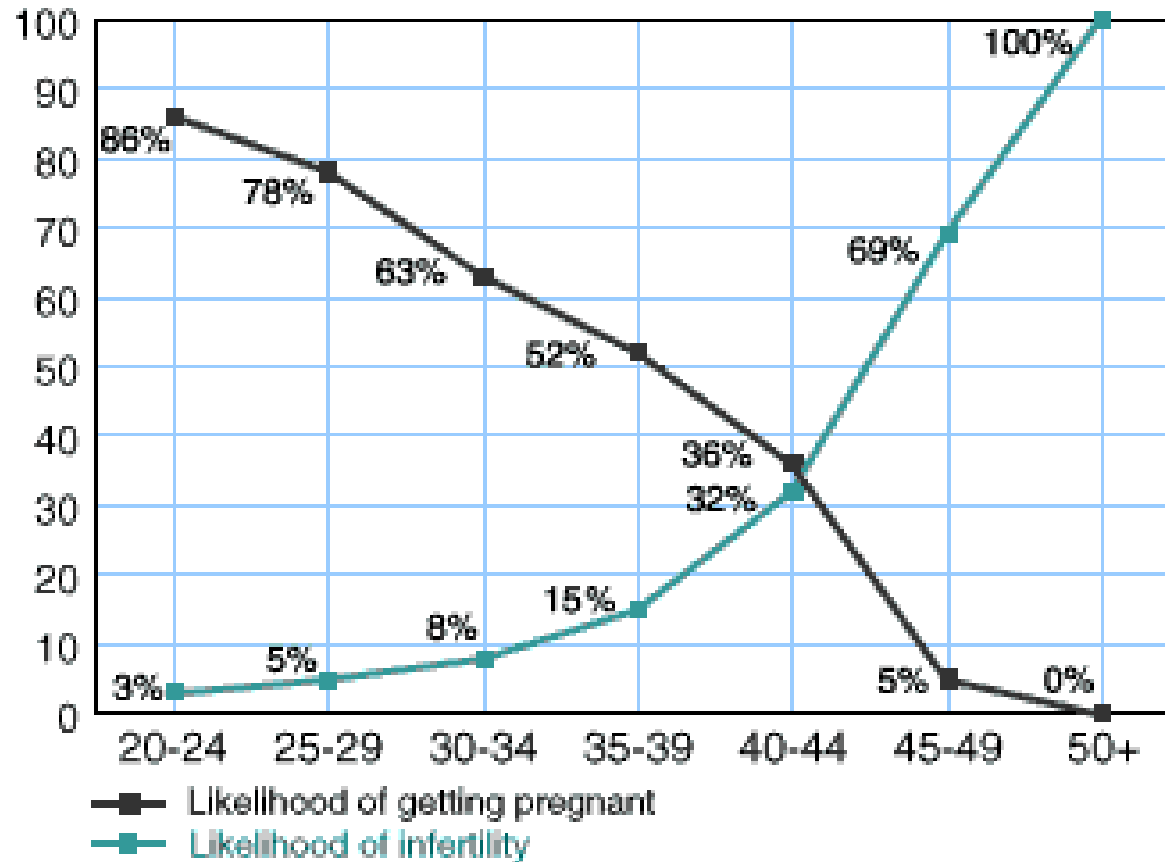
# Is there more fertility treatment?



# Chances of getting pregnant

Time	Successful (/100)	Total Successful (/100)
Month 1	25	25
Month 2	19	44
Month 3	14	58
Month 4	11	68
Month 5	8	76
Month 6	6	82
Month 7	4	87
Month 8	3	90
Month 9	3	92
Month 10	2	94
Month 11	1	96
Month 12	1	97

# Age and pregnancy





# Age and pregnancy

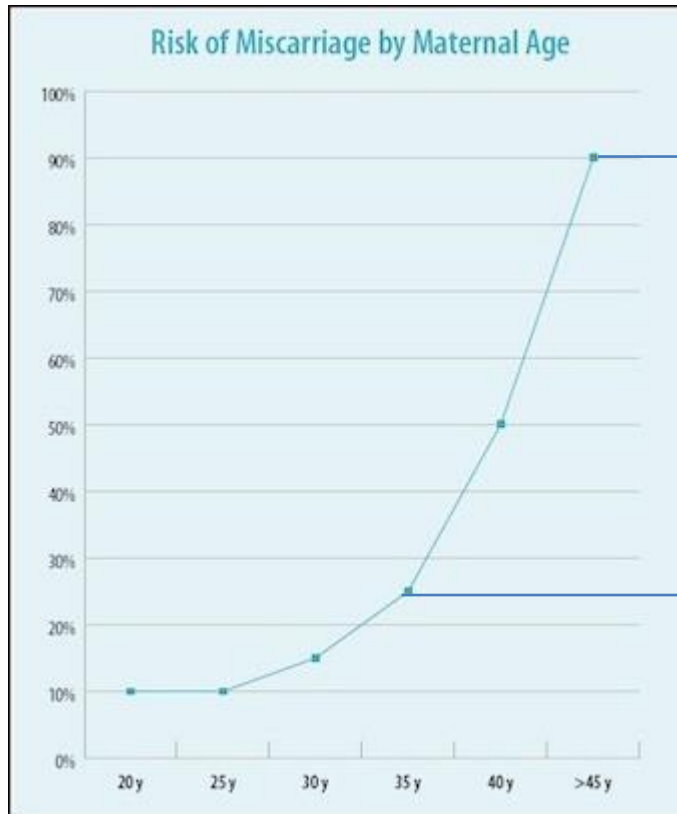
## WHAT ARE THE ODDS?

The table gives the chances of a woman who is trying for a family becoming pregnant within the next month

Age	Number of months trying for a family					
	3	6	9	12	24	36
25	18%	15%	12%	10%	6%	3%
30	16%	13%	11%	9%	4%	2%
35	12%	9%	7%	6%	2%	1%
40	7%	5%	4%	3%	1%	0.5%

Source: PLoS ONE

# Age and miscarriage

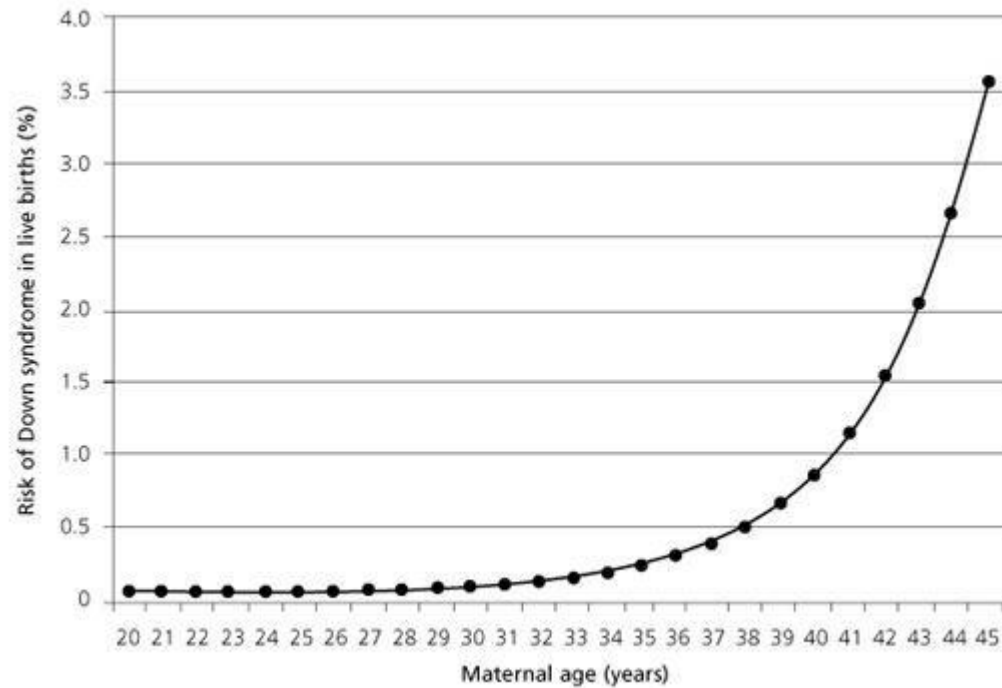


90% >45

65% +

25% at 35

# Risk of Down's syndrome pregnancy



# When to refer?

- Sooner if  $> 35$
- Clear pathology
  - Male factor
  - Anovulation
  - Tubal factor
  - Endometriosis
  - Unexplained

# Investigations - female

- Bloods tests
  - Day 2-5: FSH, LH, Estradiol
    - Indicative of ovarian reserve
  - AMH (anti mullerian hormone)
    - Indicative of ovarian reserve
    - Very popular!
  - Thyroid function
    - TSH <2.5 increased risk of fertility problems and miscarriage
  - Rubella
  - Day 21 Progesterone
    - ovulation

# Investigations -female

- Transvaginal ultrasound scan
  - Pelvic anatomy
  - Pathology
    - Endometrial polyps
    - Fibroids
    - Cysts
    - Adhesions
    - Blocked tubes

# Female tests

- FSH/LH
  - Test of menopause
  - Tell you when its too late!
- AMH
  - Test of “ovarian reserve”?
  - Enables dose setting for IVF cycle
- Ultrasound
  - Operator dependent

# Investigations - male

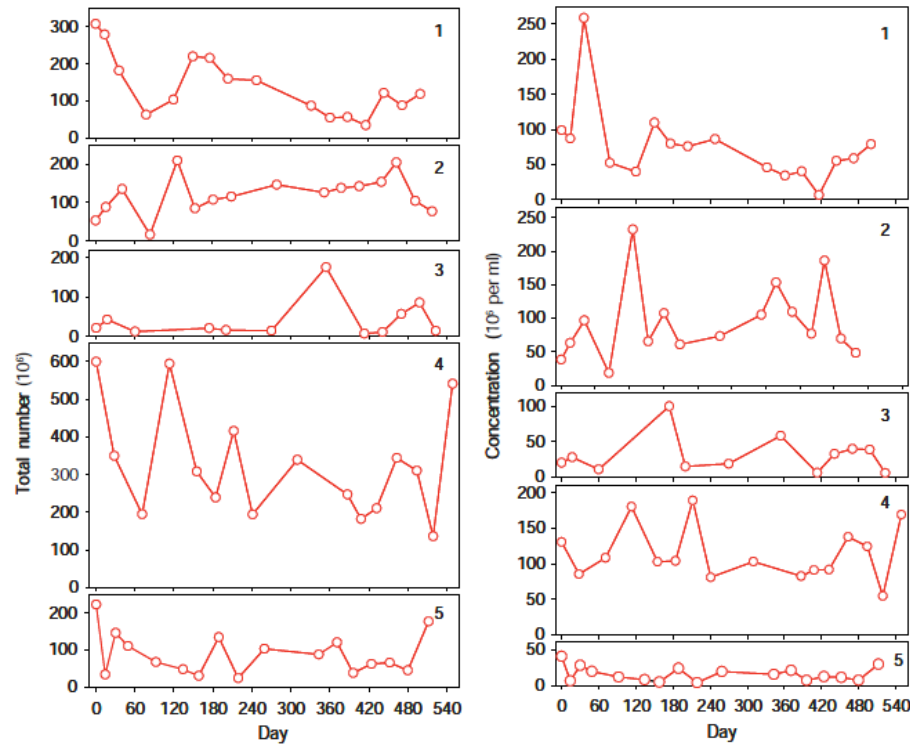




# Semen analysis

Parameter	Lower Reference Limit
Volume (mL)	1.5
pH	$\geq 7.2$
Sperm Concentration ( $10^6$ per mL)	15
Total Sperm Number ( $10^6$ per mL)	39
Total Motility	40
Progressive Motility	32
Strict Morphology (normal forms, %)	4

# Semen analysis – the catch!



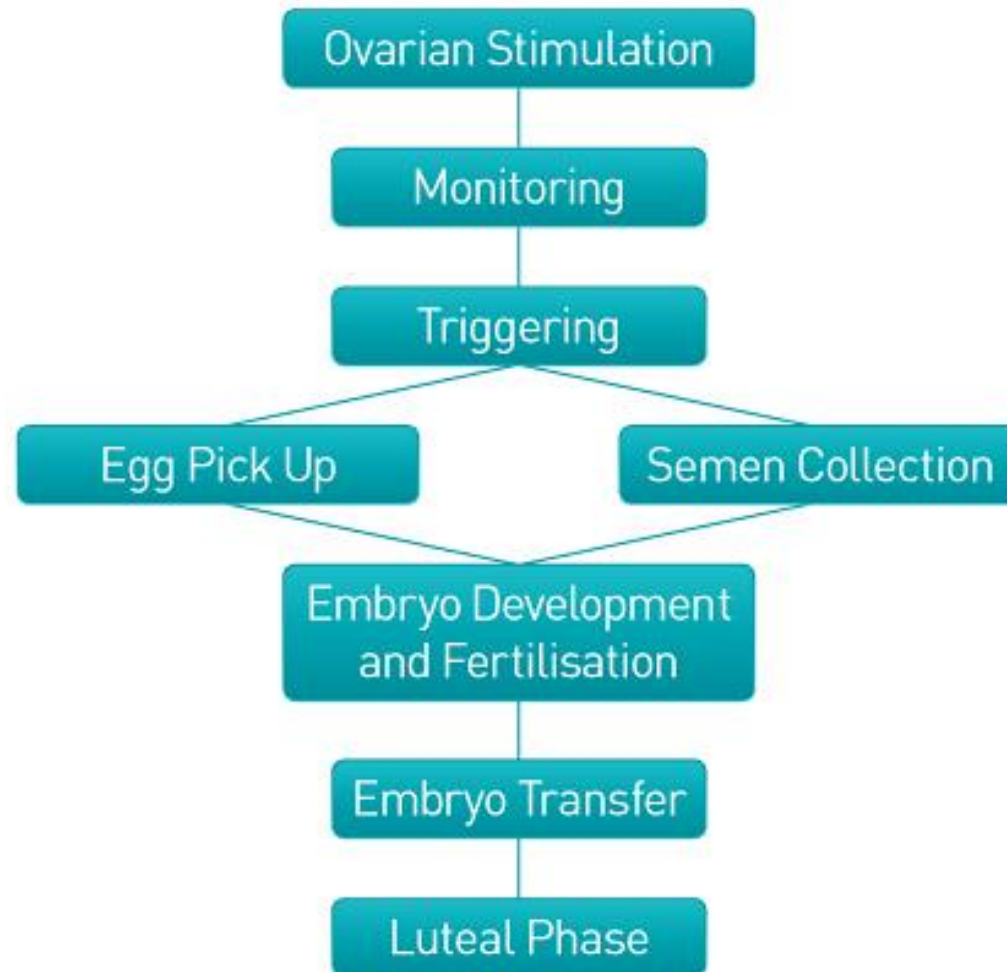
# IVF clinic

- History
- Review investigations done by GP
  - Baseline FSH, LH, Estradiol
  - Ultrasound scan
  - Semen analysis
- Arrange further tests
  - AMH
  - Antral Follicle Count
  - Uterine cavity assessment
    - Saline scan
    - HSG

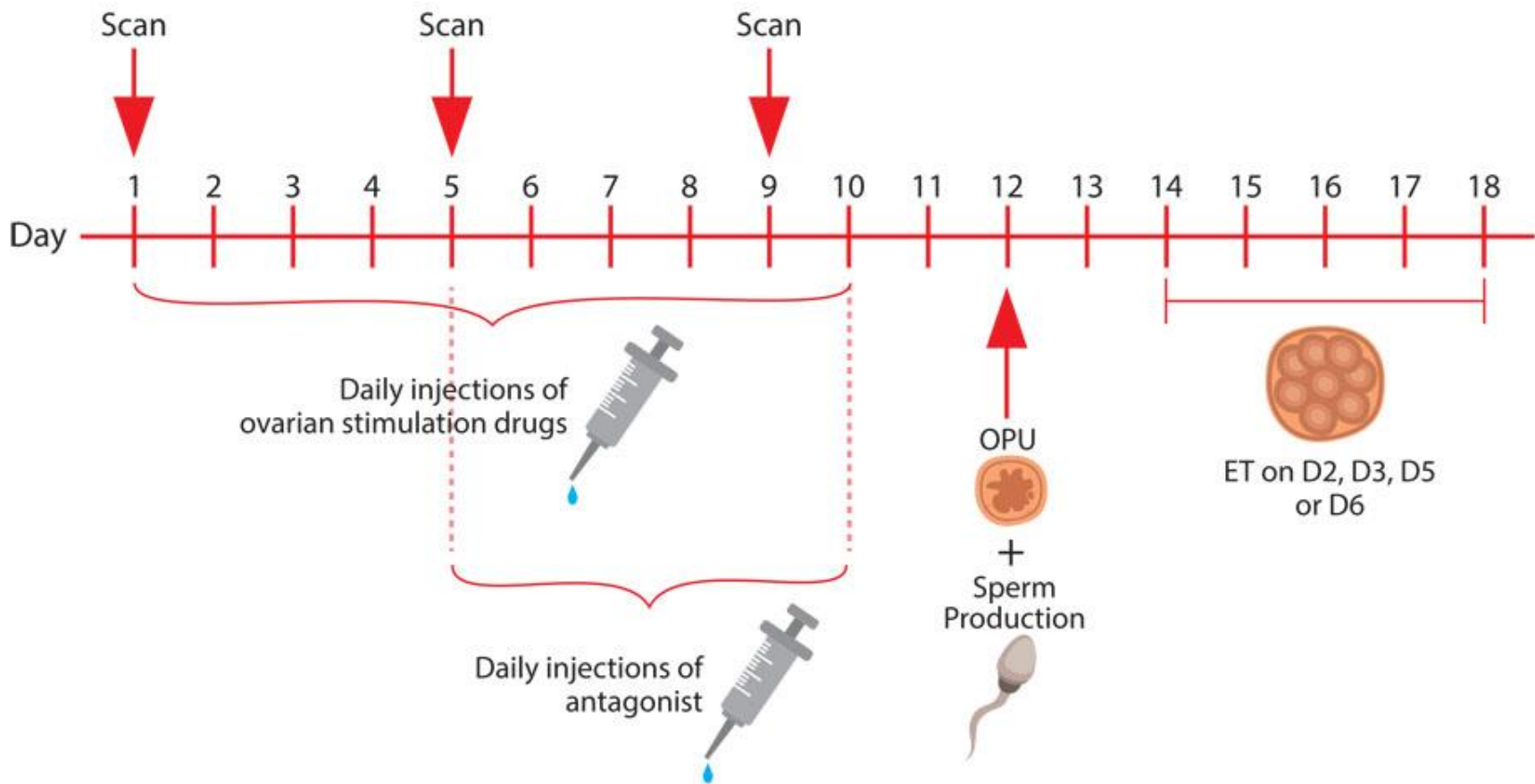
# IVF clinic

- Explain process of IVF
- Risks
- Eligibility
- Availability
- Aftermath....

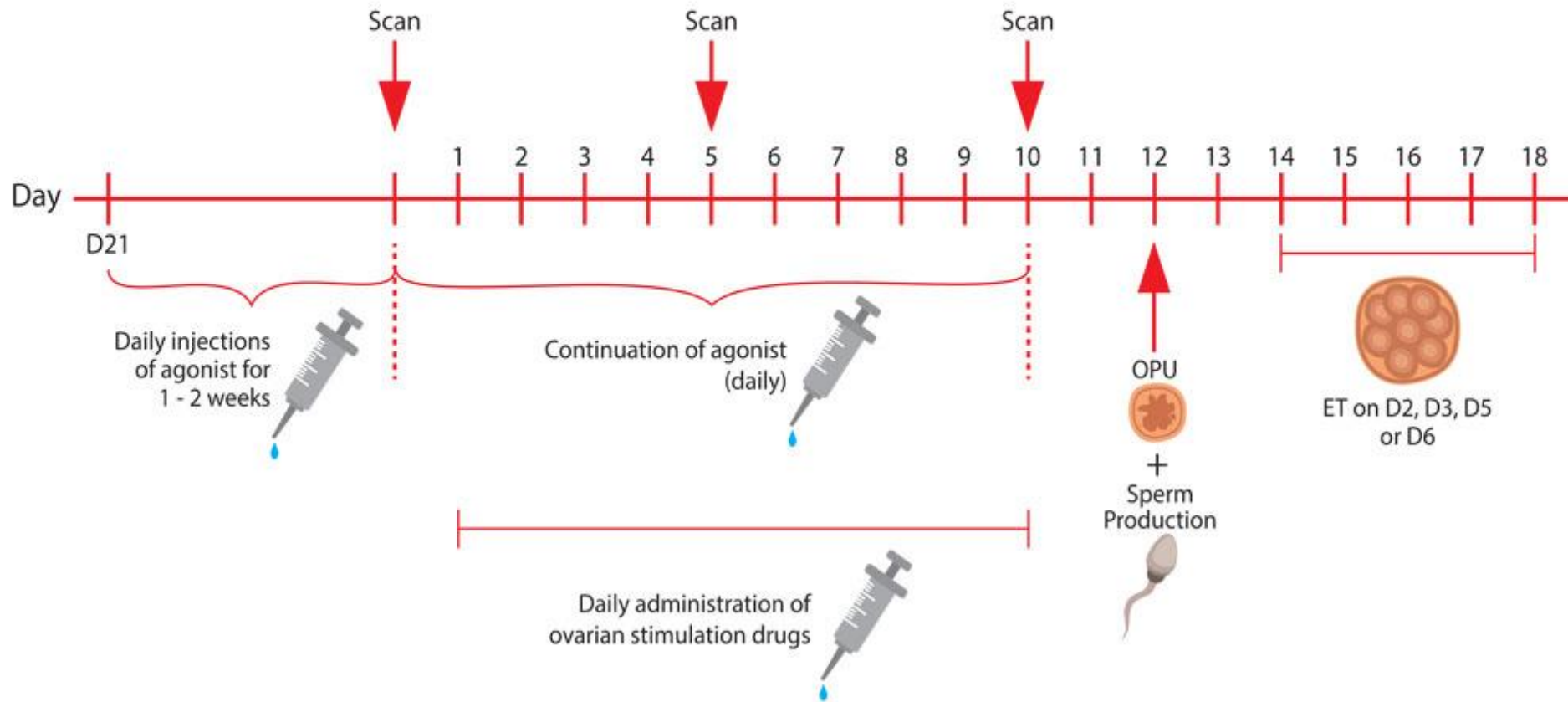
# IVF



# SHORT ANTAGONIST PROTOCOL



# LONG DOWN REGULATION PROTOCOL



# Risks of IVF

## Your First Cycle

Only **4 in 10 women** will give birth at their first IVF cycle.

Unfortunately, fertility treatment is a process not a one shot wonder!



## By the Third Cycle

However, after three cycles, **MORE than 9 in 10 women** will successfully give birth.



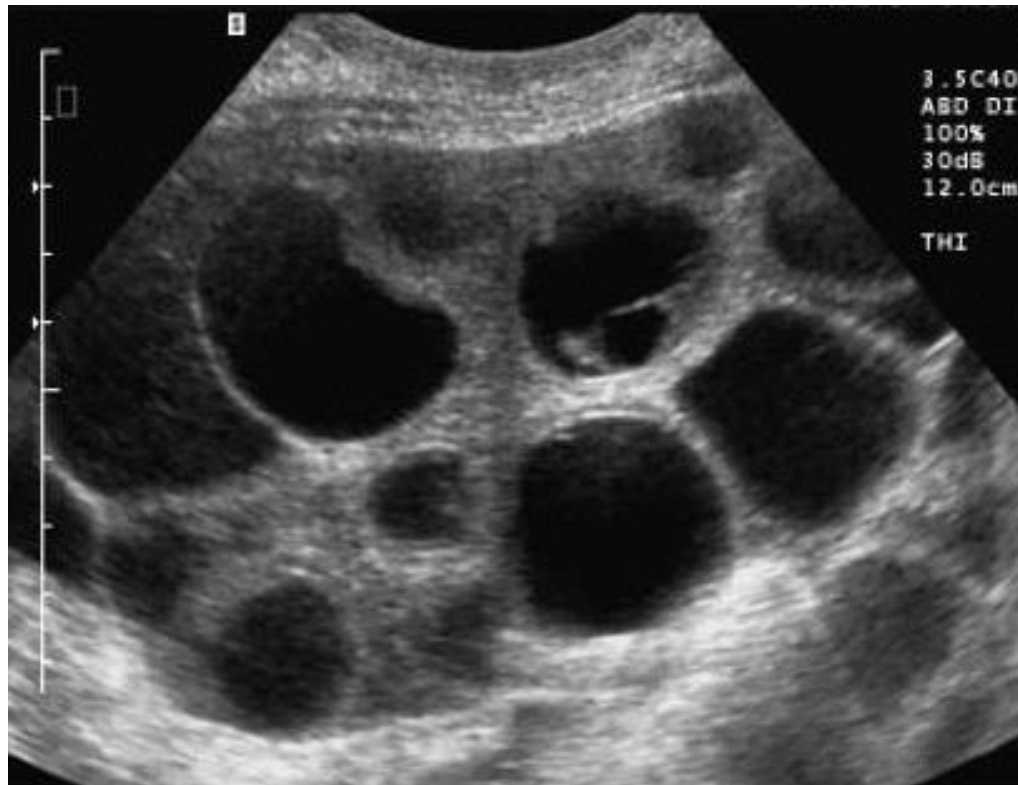


# Risks of IVF



TYPE OF PREGNANCY	Require a stay in the NICU	Average length of stay in the NICU	Major handicap	Risk of cerebral palsy	Risk of death by age 1 year
Singleton	Rare	--	1%	0.2%	0.7%
Twin	25%	18 days	10%	4x higher	7 x higher
Triplet	75%	30 days	20%	17 x higher	20 x higher
Quadruplets	100%	58 days	50%		

# Risks of IVF



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# Risks of IVF

- No eggs collected
- No eggs fertilised
- Poor sperm quality
- Poor embryo quality
- Poor endometrium

# Eligibility NWL CCG

- Female age <40
- BMI <30
- Non smoker – both partners
- No children in current or previous relationships
- Funded for 1 fresh and 1 frozen cycle

# NWL CCG

## same sex couples

IVF will be funded for same-sex couples, or a woman not in a partnership if they have an identified pathological problem or unexplained infertility has been established; provided that evidence is available to demonstrate that at least 12 cycles of self-funded donor sperm and artificial insemination (AI) have been undertaken by a licensed provider where at least 6 are by IUI, and appropriate clinical assessments and investigations have been carried out. .

# Eligibility NWL CCG

10.2 NWL CCGs provide 1 cycle of IVF treatment (+/- ICSI) for eligible women aged up to 40 years, who:

- a) Have not had any previous cycles of IVF funded by the NHS or alternatively, no more than 2 self-funded cycles.
- b) Have **no evidence of low ovarian reserve (NICE CG156, Recommendation 1.3.3.2 Ovarian reserve testing).**
- c) Have been advised on risks and implications of the treatment.
- d) Do not have any living biological or adopted children from their current relationship or from any previous relationships.

## Ovarian reserve testing

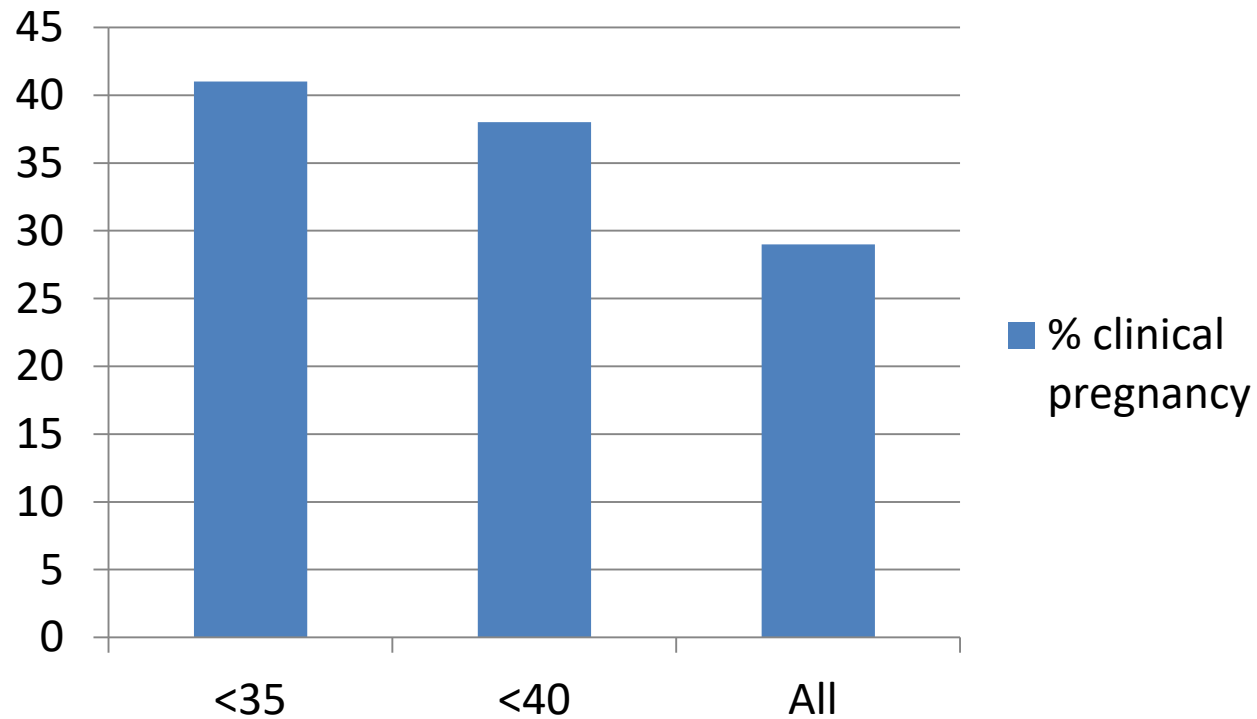
❖ *A woman's age is an initial predictor of her overall chance of success through natural conception or with IVF*

❖ Measures are used to predict the ovarian response to gonadotrophin stimulation:

- Total antral follicle count of  $\leq 4$  for a low response and  $> 16$  for a high response
- Anti-Müllerian hormone of  $\leq 5.4$  pmol/l for a low response and  $\geq 25.0$  pmol/l for a high response
- FSH  $> 8.9$  IU/l for a low response and  $< 4$  IU/l for a high response

# Low ovarian reserve?

IVF cycles  
AFC <4  
**% clinical pregnancy**



01.01.2013 – 01.01.2018 Hammersmith Hospital Data

# Ovarian reserve

- Age
  - AMH
  - AFC
- 
- An index of the number of eggs collected
  - NOT quality of eggs
  - NOT chances of pregnancy



# Availability

- Several providers across sector
- Variable access criteria
- Variable waiting times

# Wolfson Fertility Centre Hammersmith Hospital

- No waiting time for NHS funded IVF
- 2 weeks for new appointment on choose and book
- Can start immediately
- If urgent:
  - [ICHC-tr.infertilitynhsreferrals@nhs.net](mailto:ICHC-tr.infertilitynhsreferrals@nhs.net)
- Any queries:
  - [Imperial.ivfadmin@nhs.net](mailto:Imperial.ivfadmin@nhs.net)

# IVF outcome

- Positive pregnancy test
  - Continue progesterone supplements till 8-10 weeks gestation
  - Viability scan 6 weeks
- Negative pregnancy test
  - Review within 4 weeks
  - Stop all medications

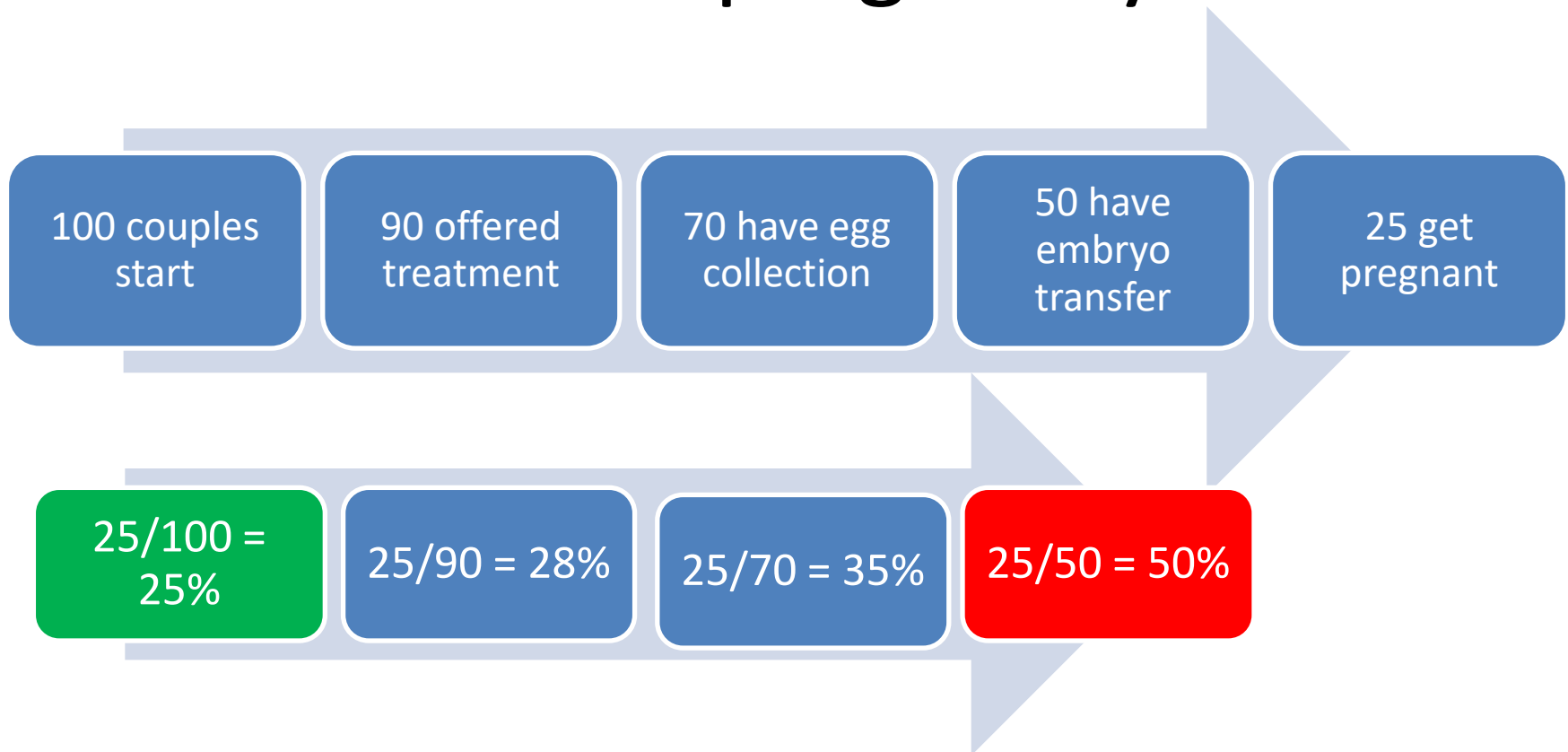
# Negative result

- NWL CCG fund 1 frozen transfer
  - Only if embryos frozen
  - Cumulative pregnancy rate high (40%/40%)
- If no longer eligible
  - Self funded IVF
  - Several providers in London
  - 90% of patients stay on at Wolfson and continue self funded treatment

# Negative result

- Patient support
- Evidence based care
- One clinic better than another?
- IVF “add ons”:
  - Immune testing
  - Endometrial scratch
  - Laser hatching
  - Embryo glue

# Understand pregnancy rates



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