



# Initial Evaluation and Treatment of Infertility

In a Primary Care Setting

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# Objectives

- Identify indications for seeking (in)fertility treatment
- Outline factors contributing to (in)fertility and their evaluation
- Interpret AMH results
- Contrast (in)fertility treatments by diagnosis

# Infertility

- A disease defined by the failure to achieve a successful pregnancy after 12 months of appropriate, timed unprotected intercourse or therapeutic donor insemination

# Other reasons for (in)fertility evaluation/treatment

- Medical history/physical findings that justify
  - Anovulation/oligoovulation/amenorrhea
  - History/anticipated gonadotoxic exposure
- 6 months in women over 35
- Women over 40
- Need/desire for third-party reproduction
  - Donor egg/sperm/embryo
  - Gestational carrier
- Recurrent pregnancy loss
- Planned fertility preservation

# Factors contributory to (in)fertility

- Male factor
- Tubal factor
- Uterine factor
- Ovulation
- Ovarian reserve

# EVALUATION

- Male factor
- Tubal factor
- Uterine factor
- Ovulation
- Ovarian reserve
- Semen analysis
- Hysterosalpingogram
- Ultrasound/Exam
- History/Labs
- Ultrasound/Labs



# Histories

- Infertility duration/treatment
- OB/GYN
  - Menstrual
  - Pregnancy
  - Contraceptive
  - Coital/sexual
  - STI
  - Cervical
- Surgical/Medical/Medication
- Targeted ROS
- Family
- Exposure

OHSU

# Physical Exam

- Vitals
- Thyroid
- Breast
- Signs of androgen excess
- Pelvic



# Semen Analysis

\*Reference ranges vary by lab

WHO 2010, Kruger strict criteria

- Volume 1.5 mL
- Concentration 15 mil/mL
- Motility 40%
- Morphology 4%



# Hysterosalpingogram

- Timing: not bleeding, pre-ovulatory
- Doxy 100 mg bid x 5 days if history of PID or hydrosalpinx



The American College of  
Obstetricians and Gynecologists  
WOMEN'S HEALTH CARE PHYSICIANS

## ACOG PRACTICE BULLETIN

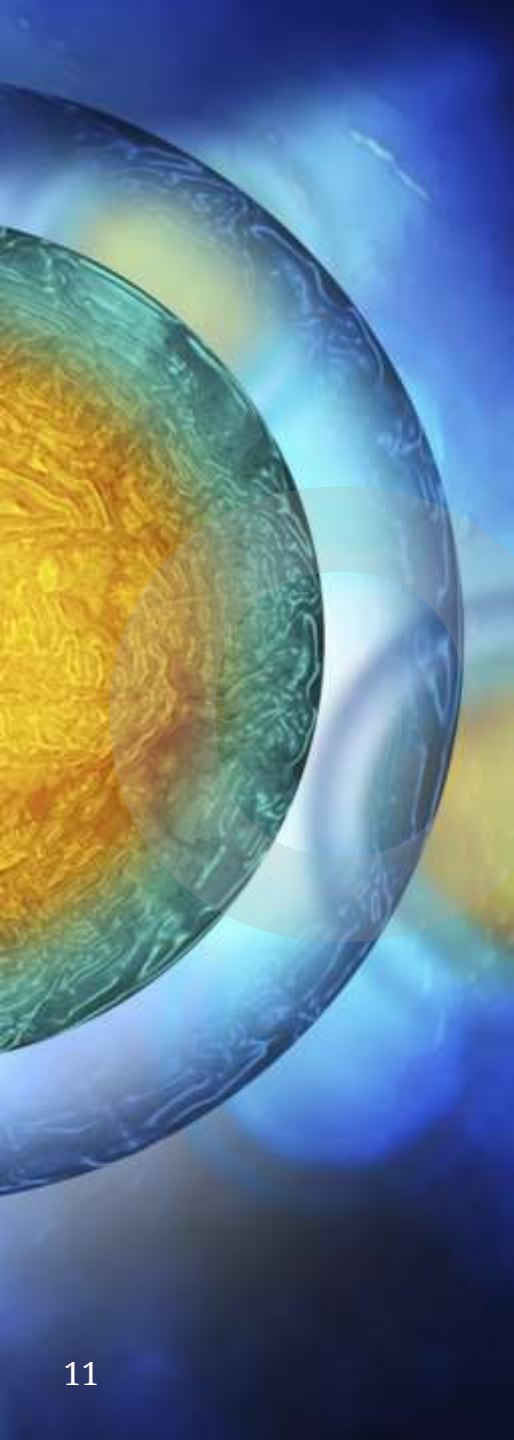
Clinical Management Guidelines for Obstetrician–Gynecologists

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*(Replaces Practice Bulletin Number 104, May 2009, and Committee Opinion Number 571, September 2013)*

**Committee on Practice Bulletins—Gynecology.** This Practice Bulletin was developed by the Committee on Practice Bulletins—Gynecology with the assistance of David E. Soper, MD, and David Chelmow, MD.

## Prevention of Infection After Gynecologic Procedures



## Ovulation

- Midluteal progesterone > 3 ng/ml
- Urinary LH
- Cervical mucus
- BBT
- Cycle length/  
regularity/  
mollimina/  
Mittelschmirtz

## Oligo/An-

- TSH
- Prolactin
- Androgens
- Gonadotropins

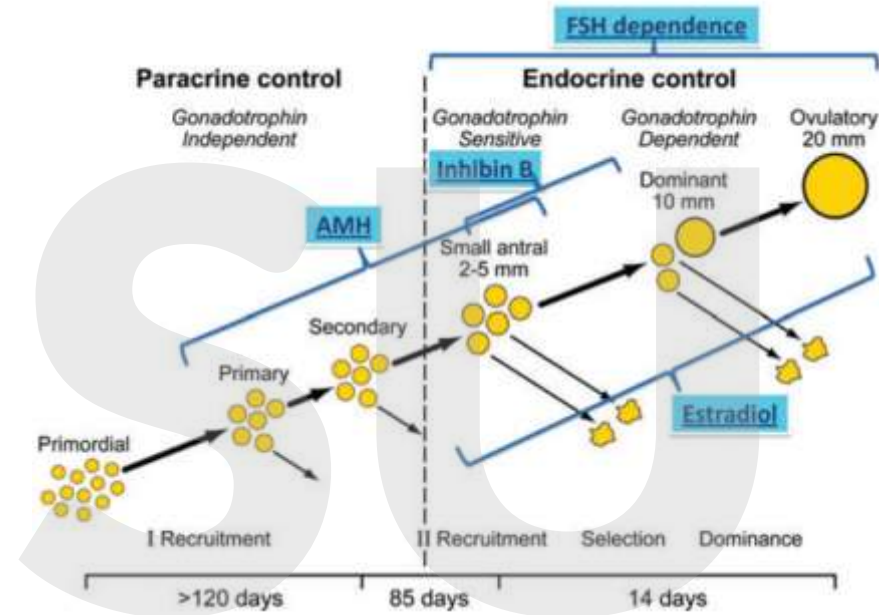
# Ovarian reserve

- AMH >1 ng/mL
- FSH <10 IU/L, E2 < 60-80 pg/ml
- AFC >5-7
- Prior IVF #eggs retrieved >3

# AMH as ovarian reserve marker

- Best single test – with limitations

DOES...	DOES NOT...
Modify anticipated age of menopause	Predict natural fertility/fecundability
<b>Correlate with IVF oocyte yield/ response to gonadotropins</b>	Reliably predict oocyte quality/ chromosome #
Vary by assay, birth control method	Show as much intracycle variance as FSH, AFC
Help set expectations	Mean someone shouldn't seek treatment



*Broer et al. Clinical implications of anti-Müllerian hormone testing. Hum Reprod Update 2014.*



## Ten Things Physicians and Patients Should Question

1. Routine diagnostic laparoscopy
2. Advanced sperm function tests
3. Postcoital test
4. Thrombophilia test
5. Immunological test
6. Karyotype screen
7. Prescribing testosterone to men
8. FSH to ID menopause
9. EMB for infertility
10. Prolactin w/o symptoms

# FERTILITY TREATMENT

## Initial Steps



# Optimizing natural fertility

- Coital frequency/practices
  - Q1-2 days
  - Lubricants (mineral oil, canola oil, hydroxyethylcellulose-based)
- Fertile window
  - 3 days ending on day of ovulation
  - OPK testing limitations
- Diet/lifestyle



# Tubal surgery

- Fair evidence (in young women w/ no other significant fertility factors)
  - Tubal cannulation for proximal occlusion
  - Laparoscopic fimbrioplasty or neosalpingostomy for mild hydrosalpinges
- Good evidence
  - Removal of surgically irreparable hydrosalpinges to improve IVF rates

# Other reproductive surgery

- In women w/ pelvic pain, visible endometriosis observed during surgery should be treated
- Limited evidence, hysteroscopic septum resection may improve outcomes when infertility or RPL present
- Fair evidence that myomectomy for cavity-distorting fibroids improves pregnancy and reduces EPL

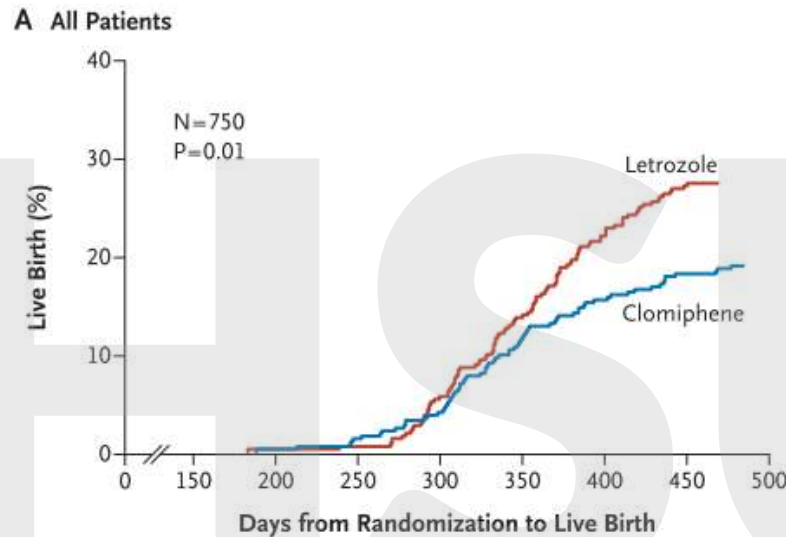
*Treatment of pelvic pain assoc with endometriosis: a committee opinion. ASRM 2014.*

*Uterine septum: a guideline. ASRM 2016.*

*Removal of myomas in asymptomatic patients to improve fertility and/or reduce miscarriage rate: a guideline. ASRM 2017*

# Ovulation induction

- Letrozole is first-line, off-label for OI in PCOS



- Hypogonadotropic hypogonadism should not respond to oral OI agents
- Bromocriptine or cabergoline until pregnancy for hyperprolactinemia

# Subclinical hypothyroid tx

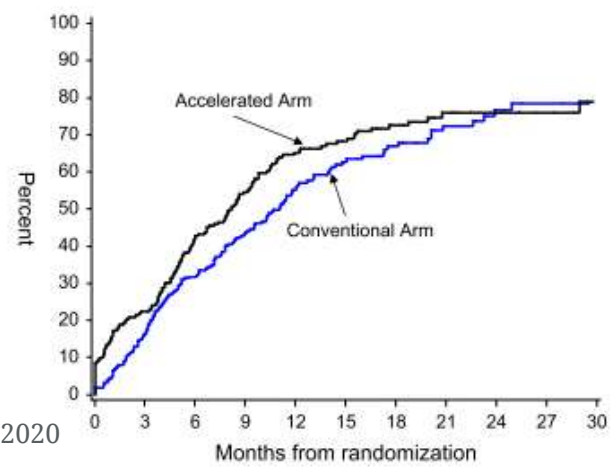
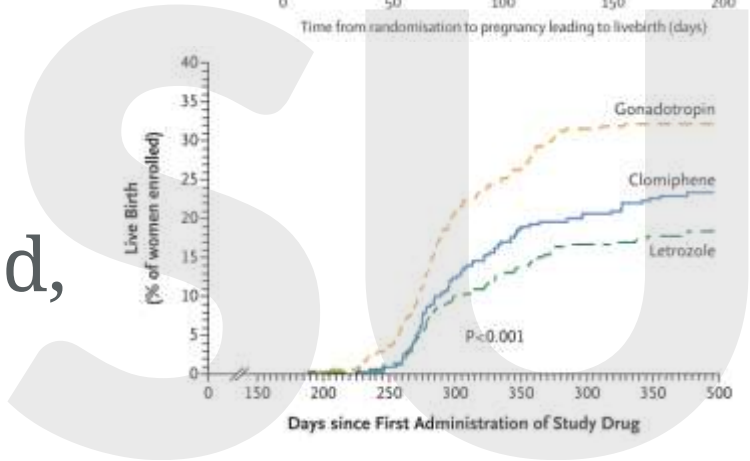
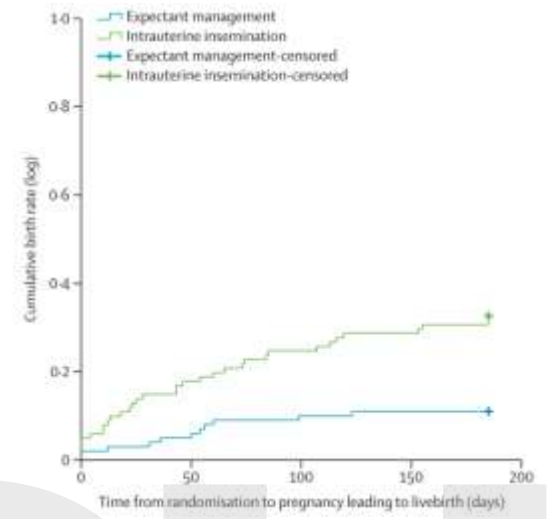
- TSH screening reasonable in infertility, diagnostic test for oligoovulation
- If >4.0 mIU/L (or >reference), treat to <2.5 mIU/L while trying to conceive
- Management of 2.5-4.0 mIU/L controversial, ASRM consider treatment, TPO Ab testing
- 2019 RCT found no difference in LB treating TPO+ women trying to conceive

Outcome	Levothyroxine Group	Placebo Group	Relative Risk or Mean Difference (95% CI) <sup>†</sup>
<b>Primary outcome</b>			
Live birth at ≥34 wk — no./total no. (%)	176/470 (37.4)	178/470 (37.9)	0.97 (0.83 to 1.14)
Thyrotropin concentration at baseline			0.59
≤2.5 mIU/liter	121/325	120/327	1.00 (0.83–1.22)
>2.5 mIU/liter	55/145	58/143	0.91 (0.69–1.20)



# Unexplained infertility

- IUI w/o OS and OS w/o IUI not more effective than expectant management
- Oral OS + IUI > expectant
  - CC 100 – IUI best studied, LTZ – IUI equivalent
- IVF as next step generally recommended over gonadotropin-IUI



Farquhar et al. TUI trial. Lancet 2018.  
 Diamond et al. AMIGOs trial. NEJM 2015.  
 Reindollar et al. FASTT trial. Fertil Steril 2010.  
 ASRM Guideline on Treatment of Unexplained Infertility expected 2019-2020



# At what age should planned oocyte cryo be considered?

Assume: 7 years between potential egg freezing and attempting conception, **WOULD** use donor sperm if not married

Age 26

- Highest LBR
- Minimal benefit over not freezing
- May be better with longer horizon

Age 30-33

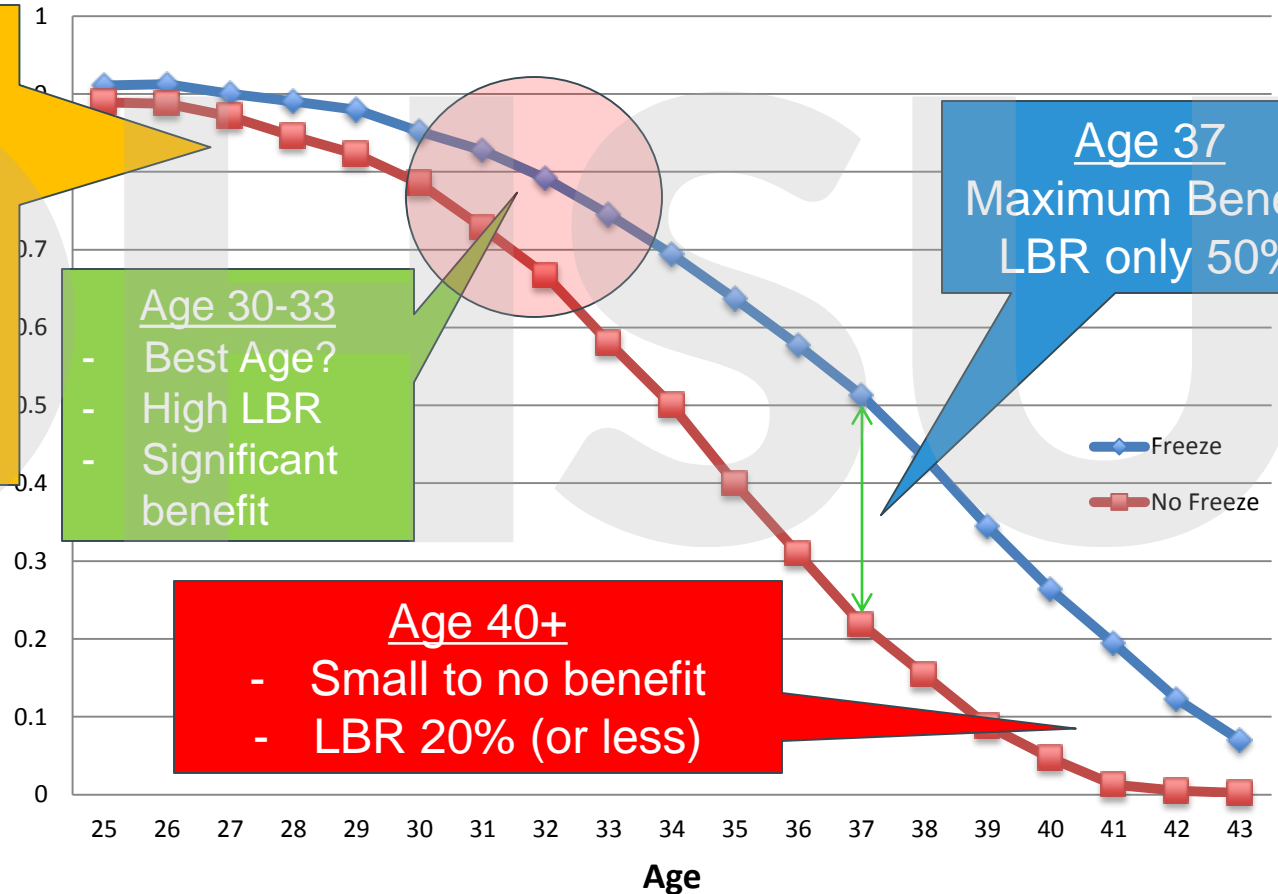
- Best Age?
- High LBR
- Significant benefit

Age 37

Maximum Benefit  
LBR only 50%

Age 40+

- Small to no benefit
- LBR 20% (or less)





# Thank You



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