

# Ovaries: In Sickness and Health



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# Topics for discussion

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- How to assess ovarian function?
- AMH
- PCOS
  
- Ovarian pain
- Ovarian cysts
  
- Ovarian screening
  
- Menopause

## Some interesting facts about ovaries

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- All of the follicles are made in fetal life!
  - At 6 months of fetal life: 3.5 million follicles
  - At birth: 1 million
  - At puberty: 400,000
  - At 50y: 1000
  - Less than 500 are used for ovulation!
- No of incessant ovulations relate to risk of ovarian cancer.
  - OCP, multiparity → lower lifetime risk
  - Ovulation induction → increased risk
- Ovaries are the only organs in the abdomen without a peritoneal covering. That's why ovarian cancer spreads quickly and also why ovaries are a common site of metastatic tumours (Krukenberg's)

# Age and ovarian function

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- FSH, LH, E2
- AMH
- Antral follicle count
- Ovarian size
- Age
- Smoking



# AMH

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- Function of ovarian reserve
- Not cycle dependent
- Produced by antral follicles
- AMH: Declines with age
- Increased in PCOS
- Smoking: Quitting improves AMH
- AMH can identify women who should start trying for pregnancy soon
- Low AMH → Reduced success rates for IVF
- However, no evidence about chances conceiving naturally

# PCOS

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- Oligo/anovulation
  - Hyperandrogenemia: clinical or biochemical
  - Polycystic ovaries on USS
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- 2 out of 3 criteria needed for diagnosis

# PCOS

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- PCO appearance: 20-30% of general population
- But only 5% of general population will have PCOS
- Features of PCOS
  - Oligomenorrhoea: 66%
  - Hirsutism: 66%
  - Acne: 35%
  - Infertility: 50%
  - Obesity: 38%
  - Slim women with PCOS: 33%
  - Increased LH: 40%
  - Increased T: 30%

# Management of PCOS

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- Stay slim
  - Weight loss through exercise and Low-GI diet
- If NOT trying to get pregnant
  - COCP &/or Metformin
  - Mirena or 4 withdrawal bleeds /yr with Progesterone
- If trying to get pregnant
  - Reassure → 50% get pregnant spontaneously
  - Ovulation induction with clomiphene or gonadotrophins
  - Risk of multiple pregnancy → follicular tracking

# Ovarian pain

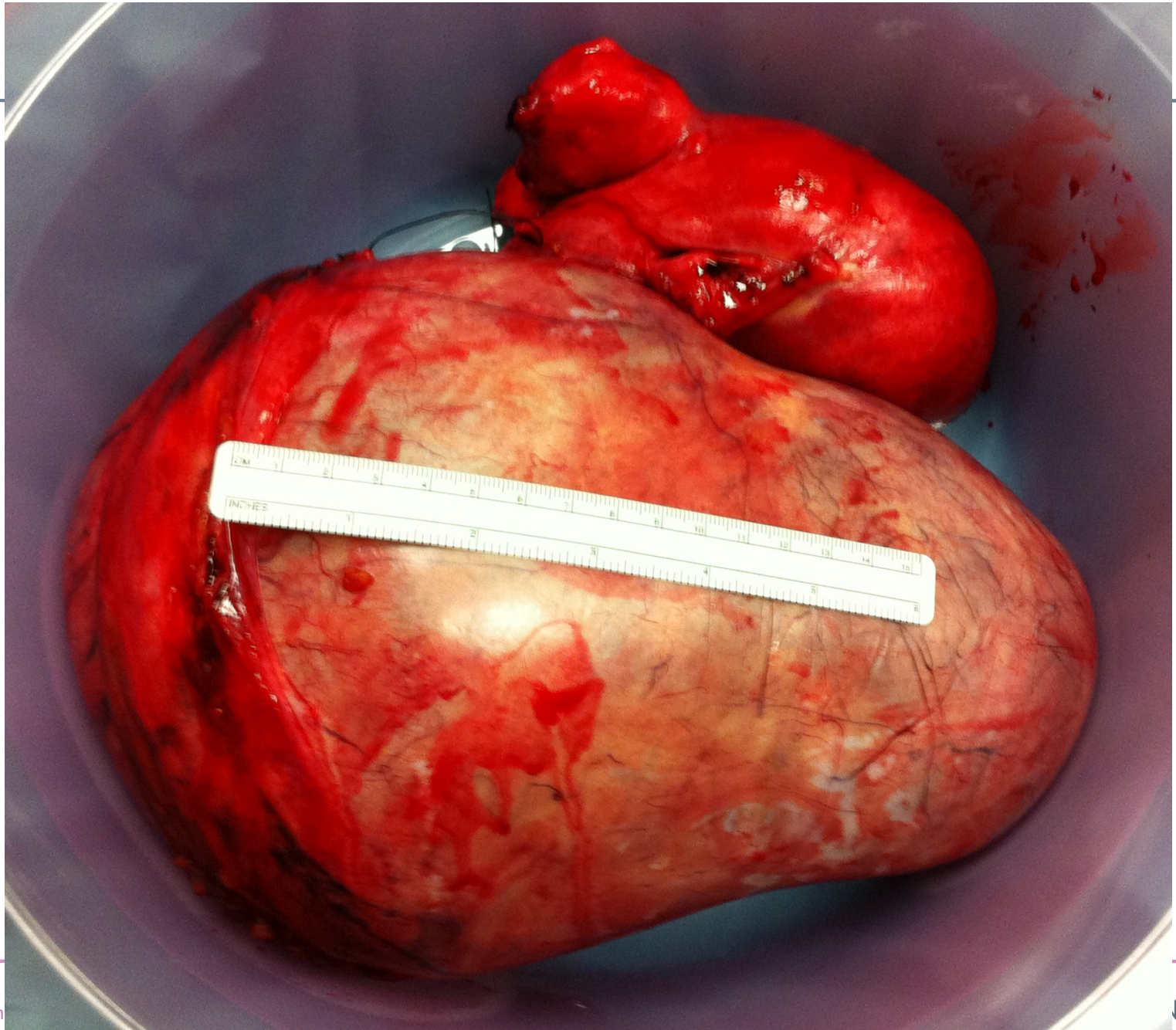
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# Mittelschmerz

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SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
P 7	8	9	10	11	12	13
14	15	16	17	18	19	20
X 21	X 22	X 23	X 24	X 25	26	27
28	29	30	31			

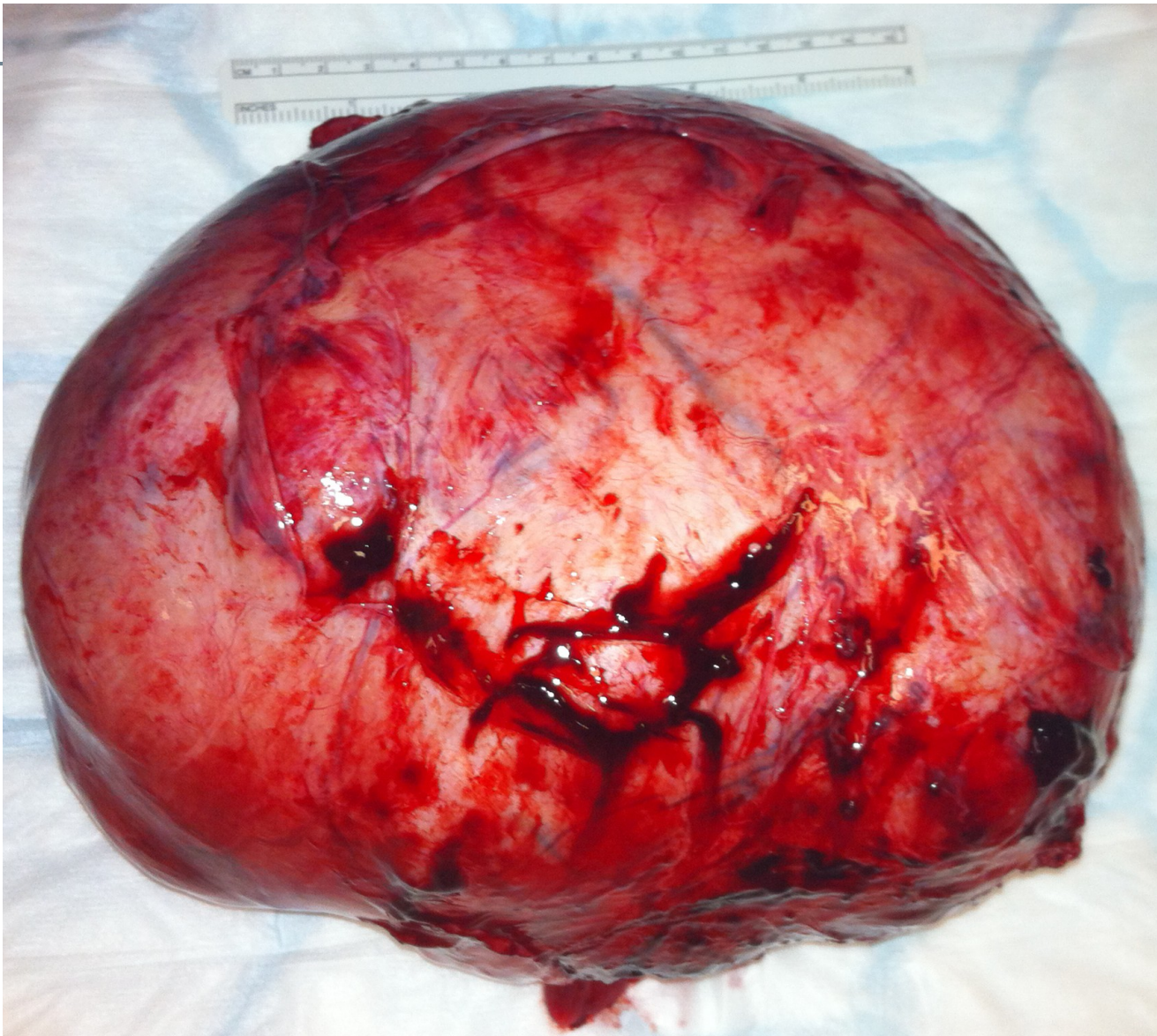
- Mid-cycle pain
- Unilateral
- NSAIDs
- OCPs









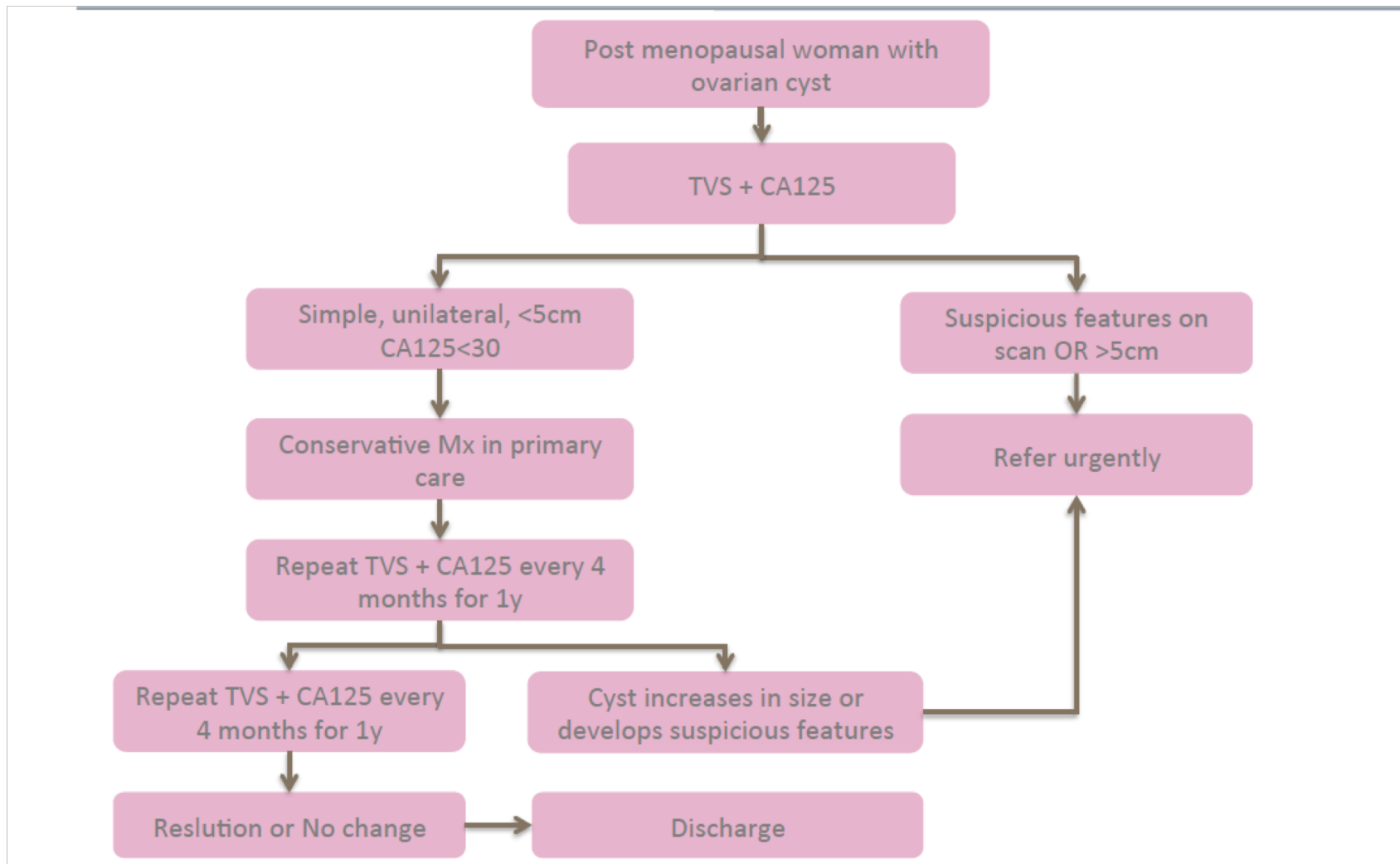




# Ovarian cysts

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- Pain because of bleeding / torsion / rupture
- Three types: Functional / Benign / Malignant
- USS characteristics important:
  - Size / complexity / irregularity / bilateral / doppler / free fluid
- In women <45, simple 6cm cyst: Repeat USS 6wks
- If suspicious features / older women / persistent simple cyst: CA125 + Refer



## Risk of malignancy index (RMI)=

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Postmenopausal: 3

Premenopausal: 1

**X**

Value of CA125 (upper limit of n = 35)

**X**

Ultrasound features s/o malignancy: 3

S/o Benign mass: 1

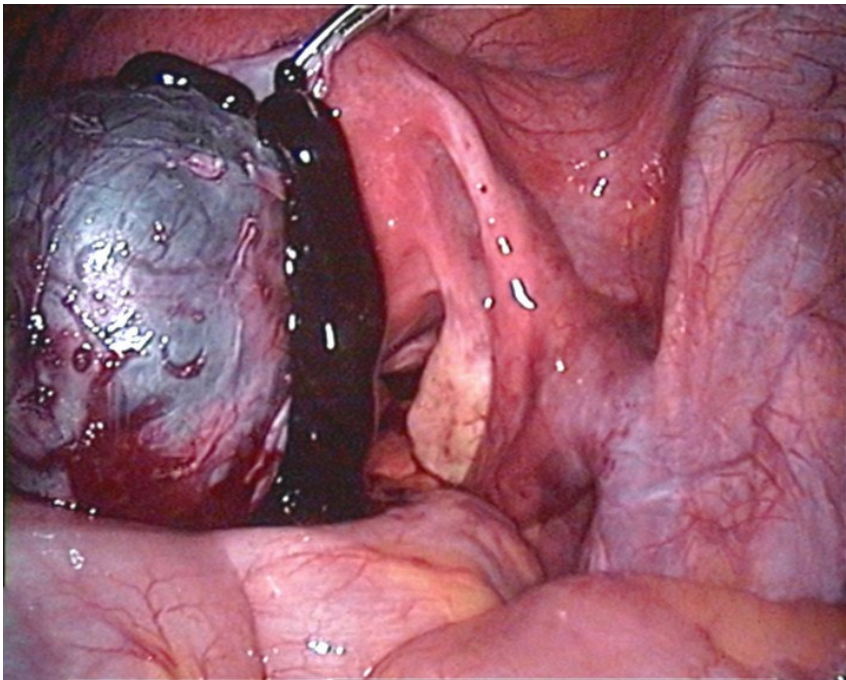
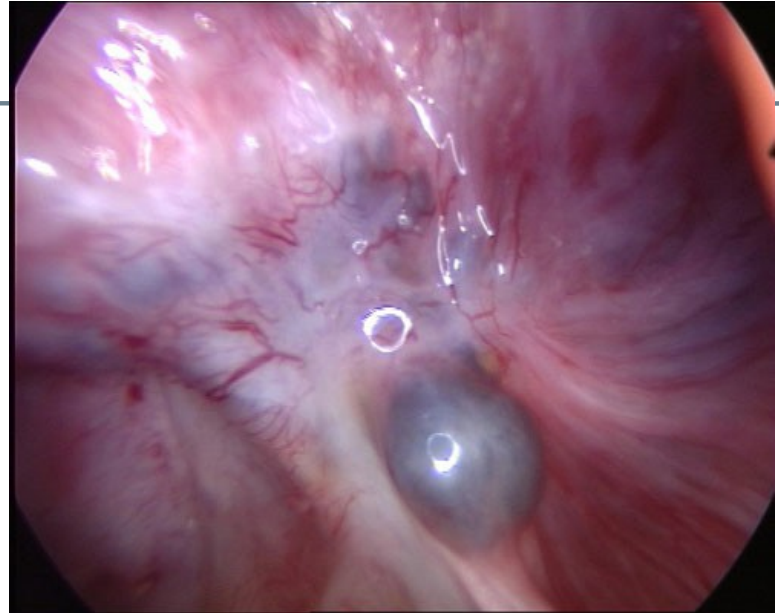
### RMI

<250: Low risk

>450: High risk

250-450: Intermediate risk





# Endometriosis

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- Ectopic endometrium
- Common sites: POD, Uterosacral ligaments, ovaries, pelvis, bowel
- Classical symptoms: Dysmenorrhoea + Dyspareunia
- Examination: Uterosacral nodularity in post fornix, adnexal tenderness, occasional RV fixed tender uterus
- USS: Useful if ovarian endometrioma present
- Laparoscopy: Diagnostic + Surgical treatment
- Medical Treatment:
  - Pseudopregnancy (Tricycle OCP) OR
  - Pseudomenopause (GnRH analogues) regimens

# Pelvic pain and COCP

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- Most women with chronic pelvic pain will benefit from OCP
  - Dysmenorrhoea
  - Ovarian Cysts
  - Endometriosis
  - Adenomyosis
  - PCOS



News

# How ovarian cancer delays are costing hundreds of lives

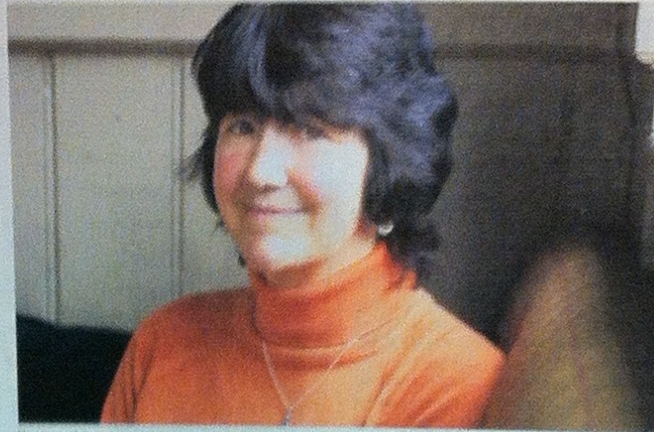
Martin Barrow Health Editor

Hundreds of women are dying needlessly every year because of avoidable delays in the diagnosis of ovarian cancer, a study published today says.

Ovarian cancer is the fourth most common cause of cancer deaths

among women, after lung, breast and bowel cancer, claiming 4,300 lives every year, and the UK has a particularly poor record compared with other European countries.

Now a study of those living and working with ovarian cancer in the UK suggests that about one-quarter of women



Esther Matthews waited seven frustrating months, but is now free of cancer

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*National Institute for  
Health and Clinical Excellence*

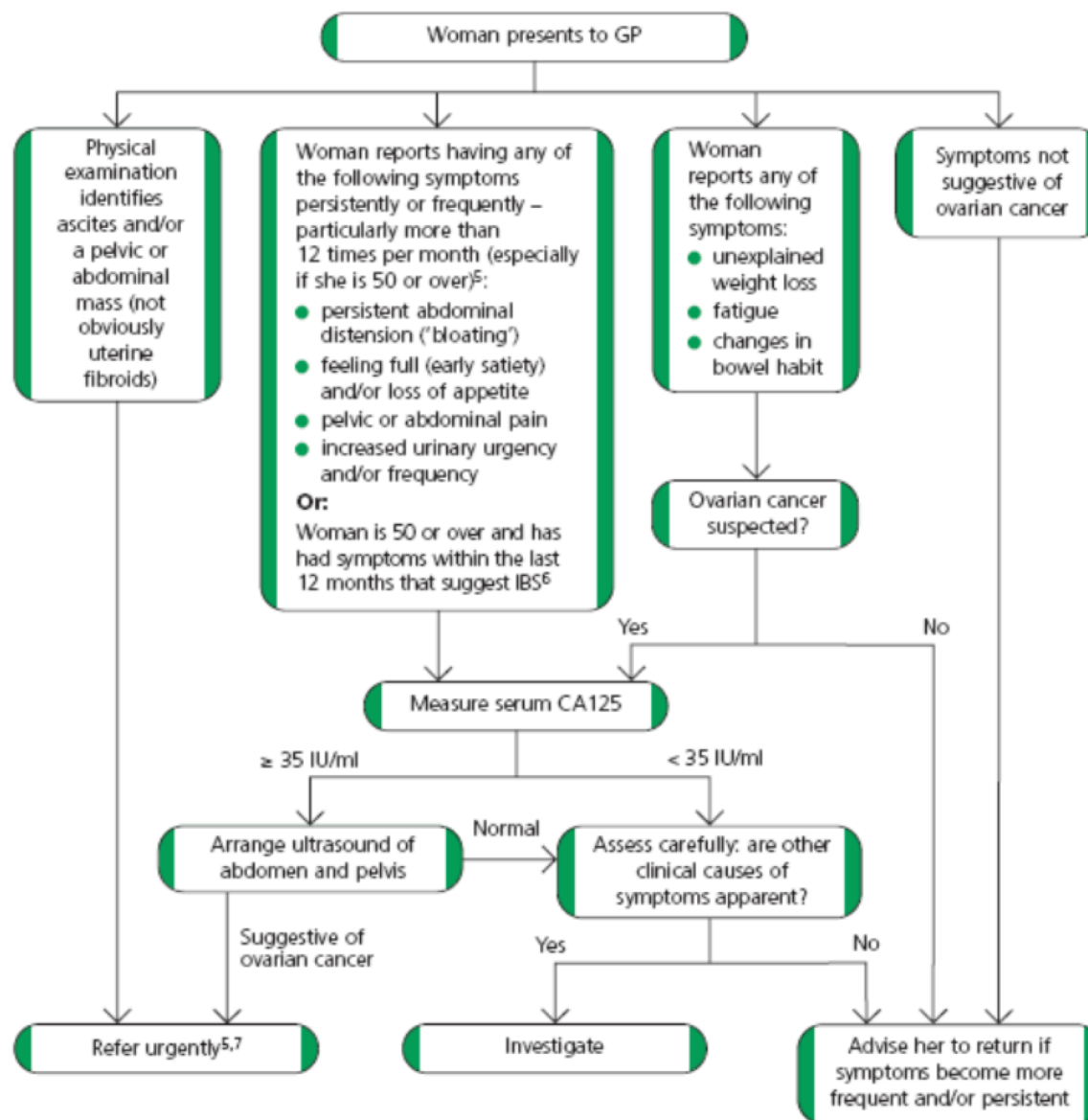
**Quick reference guide**

Issue date: April 2011

## **Ovarian cancer**

The recognition and initial management of ovarian cancer

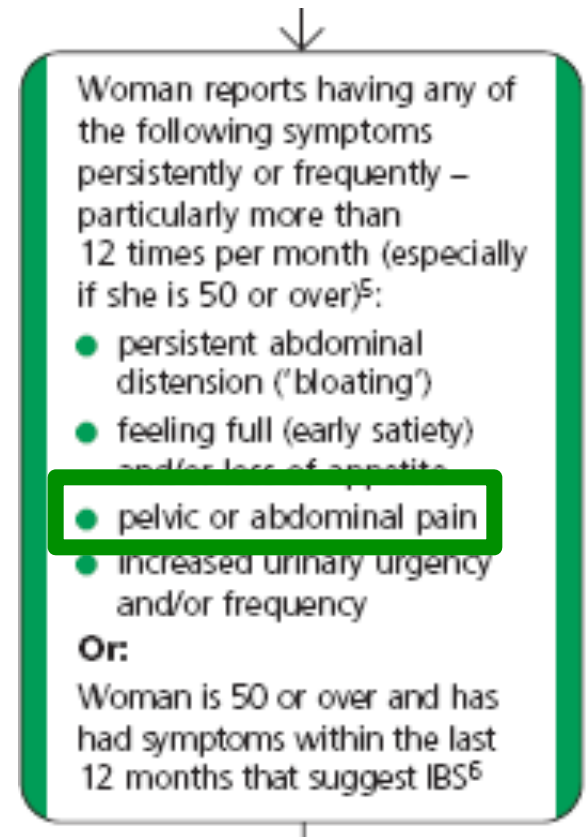
## Detection in primary care



# Irritable bowel syndrome

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- Diagnostic criteria (98% PPV)
  - At least 12 weeks of continuous or recurrent abdominal pain associated with at least two of the following:
    - Pain relieved with defecation
    - Associated with a change in frequency of stool
    - Associated with change in appearance or form of stool



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# Ovarian Cancer Screening in the General Population

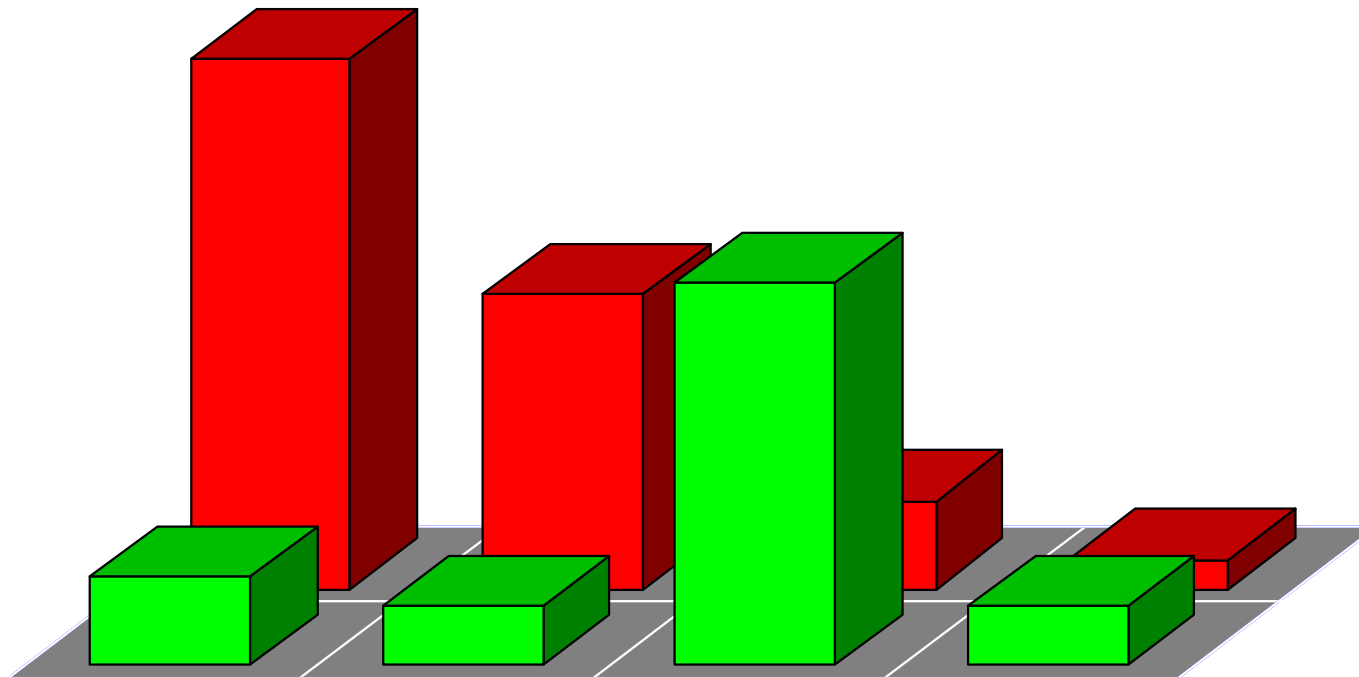
## 4th commonest female cancer in the UK

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Site	Annual Incidence	Mortality Incidence
Breast	40,740	0.32
Lung	14,878	0.87
Colorectal	15,939	0.48
<b>Ovary</b>	<b>6,663</b>	<b>0.67</b>
Uterine corpus	5,490	0.18
Melanoma	3,833	0.19
Pancreas	3,637	0.99
Stomach	3,454	0.75
Bladder	3,302	0.55
Cervix	3,045	0.39

# The rationale for ovarian cancer screening

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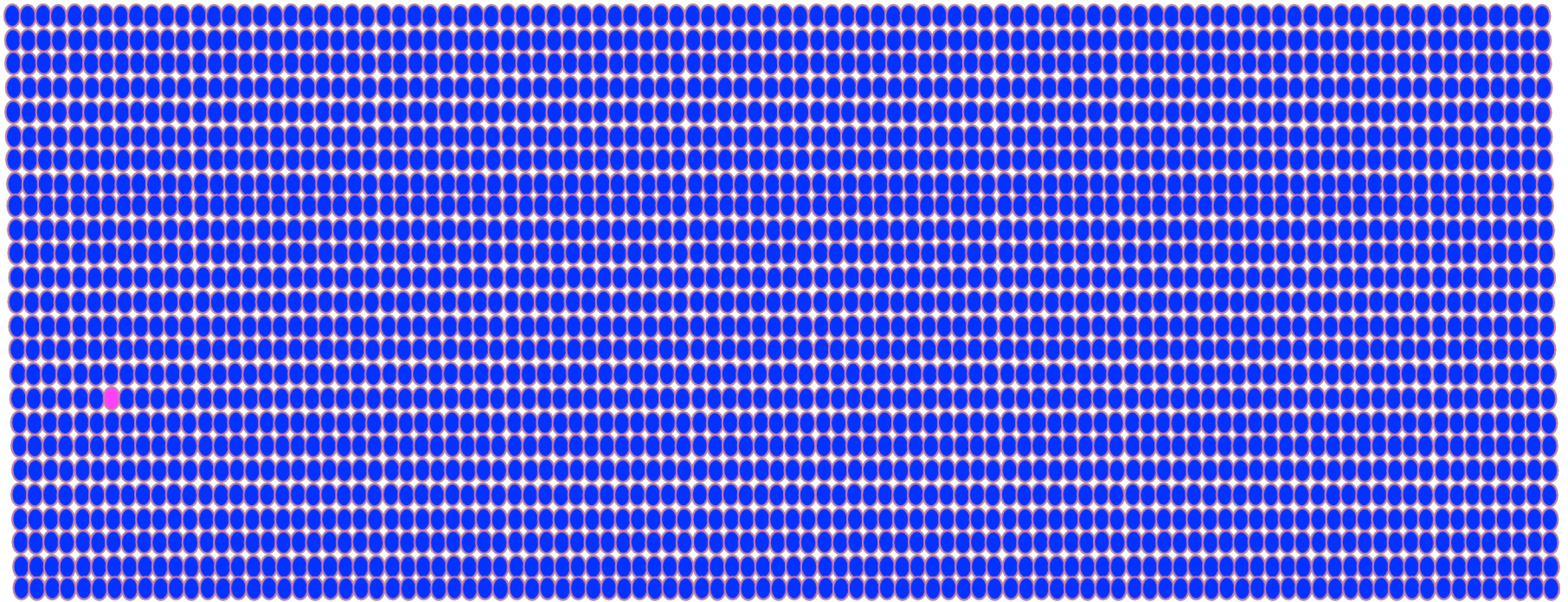


Stage I II III IV



# The challenge of ovarian cancer screening

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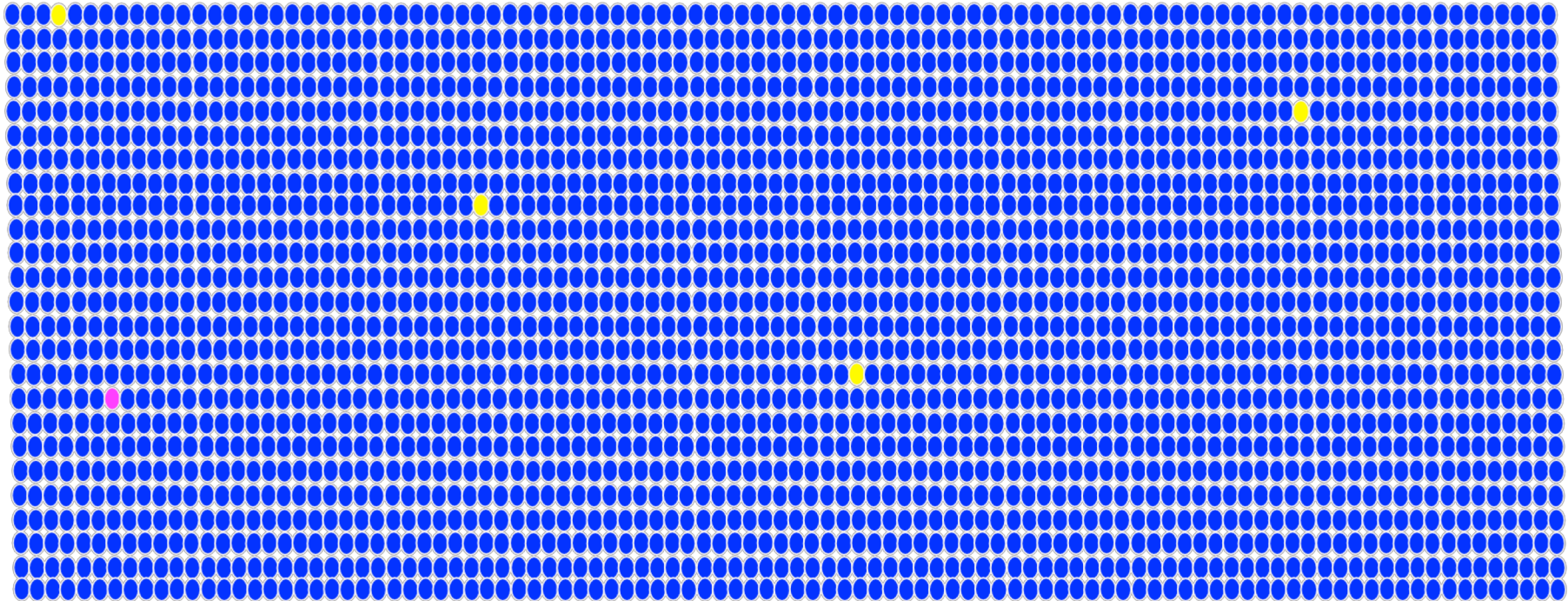
**1 in 2,500 women per year develop ovarian cancer**

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## Cost of screening

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**5 operations for each patient detected with ovarian cancer**

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There is one group of women where screening for ovarian cancer may be beneficial.

# Familial Gynaecological Cancer

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Less than 10% of breast and  
ovarian cancers can be attributed to  
a genetic predisposition to the disease

# Genes in hereditary gynae cancer

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- BRCA1 / BRCA2
  - Autosomal dominant
  - Breast and/or ovarian cancer
  - Earlier age onset
- HNPCC (LYNCH 2)
  - Autosomal dominant
  - Colorectal cancer (80% lifetime risk)
  - Ovarian cancer (10% lifetime risk)
  - Endometrial cancer (40-55% lifetime risk)
  - Earlier age onset
- OTHER GENES
  - ?Multiple / low penetrance

## What is the lifetime risk for these cancers?

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	Breast Cancer	Ovarian Cancer
General population	8%	2%
One 1st degree relative	>8%	4%
HNPCC	?>8%	10%
BRCA1	65%	40%
BRCA2	45%	25%

# Ovarian screening

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- CA125
- TVS
- Only 85% of all and 50% of early ovarian cancers will have raised CA125
- False positives with endometriosis, fibroids etc
- There will be a proportion of interval cancers even if you screen annually
- Screening can be used where risk is increased

# Ovarian aging and Menopause

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# Menopausal symptoms

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- 94% get some symptoms, 25% get severe symptoms
- Hot flushes & sweats
  - 74% experience, most common symptom
- Headaches
- Tiredness
- Irritability
- Poor memory
- Sleep disturbance
- Depression, anxiety
- Loss of libido
- Dry skin
- Vaginal atrophy
- Osteoporosis.....

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Carol found her own way  
of coping with the hot  
flushes



# HRT

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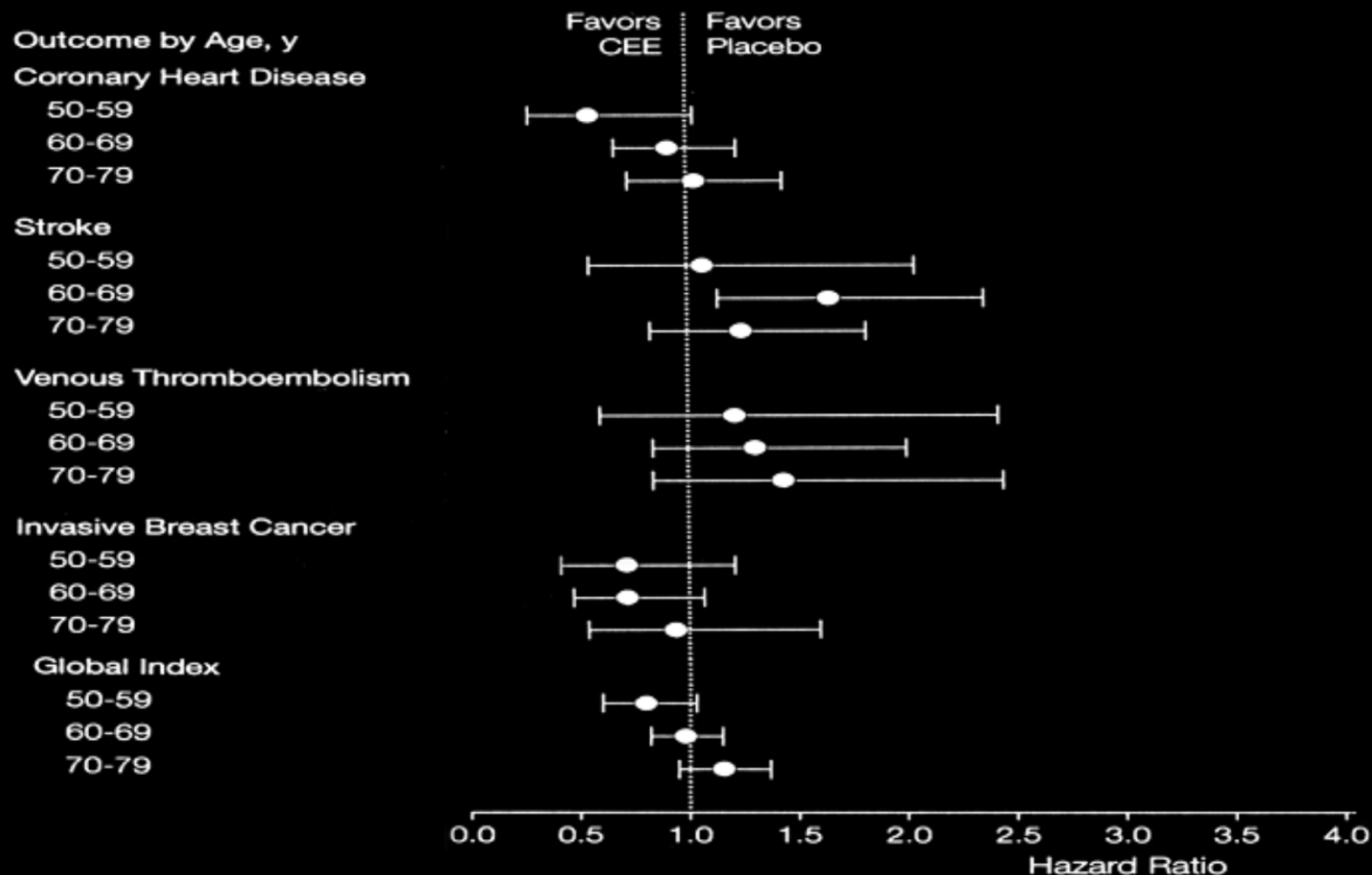
- Very effective at treating symptoms of menopause.
- Until recent studies (Women's Health Initiative and Million Women Study), HRT was widely used for long periods

## WHI STUDY (AV AGE 63)

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	RR (E2 only)	RR (E+P)
CHD	0.91	1.29
Stroke	1.39	1.41
Breast Cancer	0.77	1.26
PE	1.34	2.13
Colorectal Ca	1.08	0.63
Hip Fracture	0.61	0.66

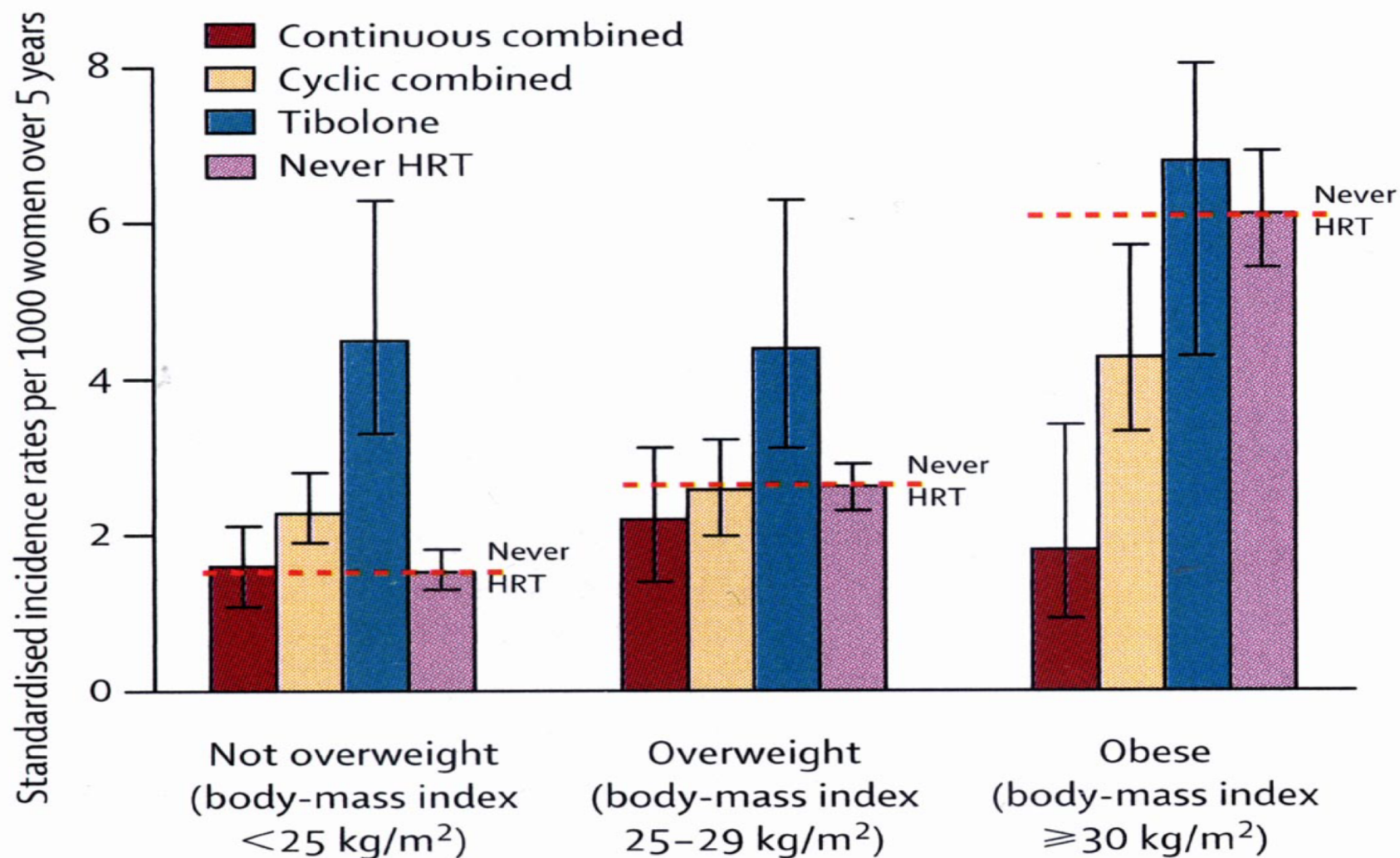
# Selected clinical outcomes by participant age



# HRT and breast cancer risk

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- Combined HRT increased breast cancer risk more than Oestrogen only HRT
- Risk increases with duration of HRT
- Risk seems to go back to normal within 5 y of stopping HRT



**Figure 5: Standardised incidence rates for endometrial cancer per 1000 women in the study cohort over a 5-year period, according to body-mass index and type of HRT last used**



## Risk of VTE with HRT

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- Risk in current users is 3-4 x higher than in non-users
  - one case in 5000 users per year
- The baseline risk of VTE between the ages of 50 and 70 is higher
- Increased risk appears to be concentrated in new users
- **VTE risk is not increased with transdermal E** (oral 3.5 vs TRD 0.9)

ESTHER study - Lancet 2003;362:428-432

# Key points HRT

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- An increase in **breast cancer** risk is related to
  - the duration of use and
  - concurrent use of progestogens
- **Transdermal oestrogen** have different metabolic profiles and side-effects (VTE risk)
- → Mirena + Transdermal Oestrogen

# Thank You



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