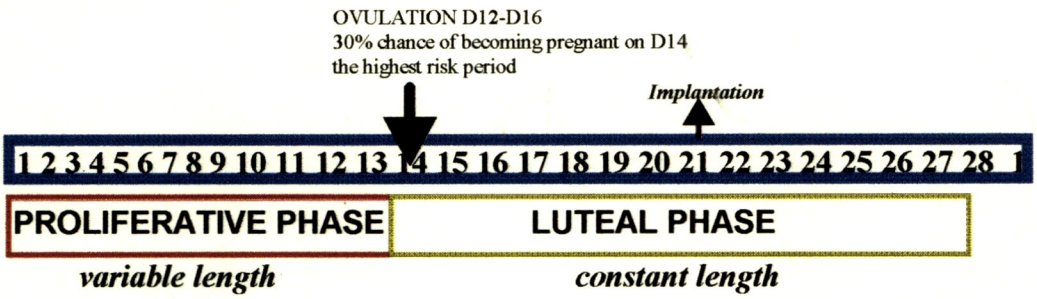
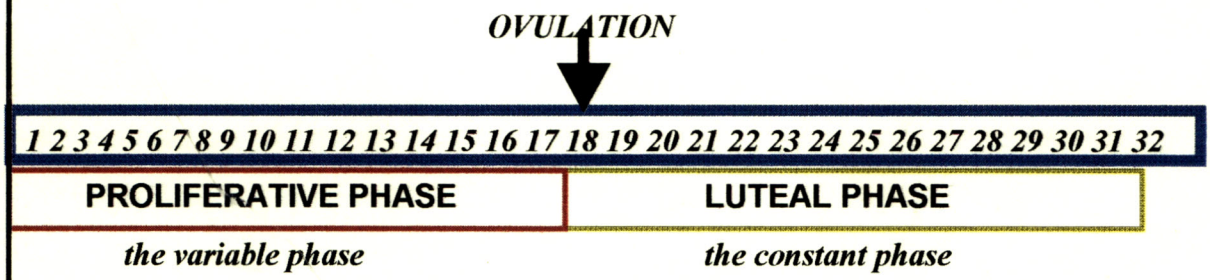
A Normal 28 day Cycle



The Luteal Phase : the phase in which the corpus luteum develops
It is ALWAYS constant no matter what the length of a womens cycle (ie lasts 14 days)

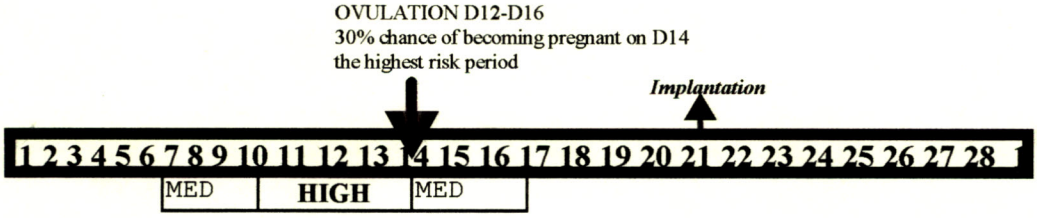
So the expected day of ovulation can always be worked out despite a varying cycle length by:
Cycle length-14

A Longer Cycle
So for instance, in a lady with a 32 day cycle



As the Luteal Phase is always constant ie 14 days in length,
Ovulation will occur on Day 18 (ie cycle length-14 = 32-14 = 18)

Risk Of Pregnancy During the Normal Menstrual Cycle



Other unmarked periods are lower risk (0-10%)
Sperm Survival : upto 7 days in fertile mucus
Egg Survival : 12-24 hours (allow 3 days for a twin ovulation)

Choosing a Contraceptive Method

The COC

Ideally For Women who are

- Aged<30 years
- likely to be compliant with pill timing/taking
- NOT Breast Feeding

Can prescribe for women>30 years but

- Carry Out a Cardiovascular Screen first (ie Hx & Ex)

The POP

In Situations In Which You Would NOT Like to Use Oestrogens

ie

- Contraindications to COC
  - eg ↑ Thromboembolism Risk, ↑ Cardiovascular Risk, Focal Migraine, Oestrogen dependant Neoplasms, complicated diabetes etc (see above)
- Oestrogen Side Effects when placed on COC
- Breast Feeding

Remember, there is a 3 hour time limit on pill timing

The Ideal Candidate is the one who is reliable enough to take it regularly

Teenagers are not very good at doing this, but older women are!!!

The Injectables

In Situations where

- Where User Is Not Very Good at Regular Pill Taking
- Person Regularly Travels Across Time Zones
- Mentally Handicapped
- Particularly good for those with Sickle Cell Disease (↓Flare ups)

The Implants

In Situations Where

- Where User Is Not Very Good at Regular Pill Taking
- User Is Not Very Good at Attending For Injections
- Person Regularly Travels Across Time Zones
- Mentally Handicapped
- Ideally, in a lady of 20-30 years with a completed family

Note: Lower efficacy in those >70Kg in weight

Not good for those who are not prepared to tolerate the bleeding irregularities

The IUCD

- Long Term Contraceptive
- Parous Women Particularly
- In a Stable Relationship and NOT sexually promiscuous (re: risk of STD's)
- Desired by the Patient

May be an idea to screen potential ladies for STD's prior to insertion

The IUS (Intrauterine System [Mirena™])

This is basically an IUCD with a Progesterone Central Reservoir instead of Copper

- As for IUCD's PLUS
- Parous Women (as diamter of introduce is large (4.8mm))
- Where Menorrhagia is a particular problem (1 in 5 will be rendered ammenorheic)
- PMH of Ectopics

Which COC Pill Brand In Which Situation?

Condition	Pill Type	Trade Name Examples
Teenagers	If Planning to use a COC, choose an Every day Pill COC Preparation You get 28 tablets in the Every day COC Pill Pack (hence the name). The 7 pills taken during what would otherwise have been the pill free week are placebo tablets. The aim is that it improves compliance by ensuring that the women remmbers to take tablets every day and doesn't need to keep track of when the pill free week is near/ending. Remember, the most dangerous pills to miss are those at the end or those at the beginning of a pack.	Femodene Logynon Trinovum Ovranette
NORMAL	Oestrogen: 30-35mcg Ethinyloestradiol (no more!) Progestogen: low dose (aim for 150mcg Levonorgestrel or 1mg Norethisterone)	
Women who have Progestogenic Problems eg acne, vaginal dryness, depression etc	Use an Oestrogen dominat COC preparation	Cilest Dianette Femodene Marvelon Minulet Trinordiol
Women who have Oestrogenic Problems eg Nausea, PMT, Headaches	Ues a Progestogen Dominant COC Preparation use a 250mcg Levoneorgesterel Prep for Menorrhagia	Loestrin 30 Neocon Norimin

Specific Medical Disorders & Advised Contraceptive

Disorder	Advised	Avoid	Notes
Diabetes	Progestogens Barrier Methods	Oestrogens	Oestrogens increase the Prothombotic risk in Diabetics Also make diabetic control worse
Epilepsy	Progestogens IUCD's	Oestrogens	Oestrogens interact with Liver Inducing Drugs such as Phenytoin, Carbemazepine and Barbiturates (and hence make the Epilepsy unstable!)
Hypertensives	Progesterones	Oestrogens	
Cardiovasccular Disease	Progesterones	Oestrogens	
Cardiovascular Risk Factors	Progesterones	Oestrogens	
Previous Venous Thromboembolism	Progestogens (non-Desogestrel/non-Gestodene Preparations only)	COC's	COC's are an absolute C/I in this scenario Women persisten in using Desogesrtrel/Gestodene Preparations must be made aware of the risks and be prepared to accept them if they wish to continue (ie informed choice) DOCUMENT THIS
Family History Inherited Thrombophilia	Progetorones (non-Desogestrel/non-Gestodene Preparations only)	Oestrogens	Can use COC only if a Thrombophilia Scrreen is negative (but a non-Desogestrel/non-Gestodene Prep) All with a history in a 1st degree relative MUST Have a Thrombophilia Screen for: Protein C deficiency Protein S deficiency Antithrombin III deficiency Factor V Leiden Mutation If considering COC, avoid the new Progestogens ie Desogestrel/Gestrodene Instead, use preparations containing Levonorgestrel/Norethisterone
Fibroids	Progestogen dominant COC		
Endometriosis	Progestogen Dominant COC		
Pelvic Infection	Barrier Methods COC's Progestogens	IUCD's	IUCD's can be used providing: • infection was >6mths ago • was mild/moderate • has not reoccured In such circumstances, use tetracycline cover prior to insertion COC's/Progestogens make the cervical mucus thicker and hence less penetrable to both bacteria and sperm!
Psychiatric Disorders (chronic)	IUCD's Depot injections Implants	All oral forms of contraception Barrier Methods	The main problem is that of patient related failure of contraceptive use during periods when they are psychiatrically unstable. The long acting methods eliminates this risk.
Learning Difficulties	as for psychiatric disorders	as for psychitraic disorders	as for psychiatric disorders
Lactating Female	Progesterones	Oestrogens	Oestrogens get into breast milk.
Migraine	Progestogens IUCD's	Oestrogens	Types Of Migraine That COC's MUST NOT Be Used With • Focal Migraine (ie migraine + Neuro symptoms/signs) • Crescendo Migraine (ie increasing in severity/duration) • Migraine treated with Ergotamine • Migraine that develops for the first time after COC use!

SLE	Progestogens IUCD's (but watch for silent infection if the lass is on steroids!)	Oestrogens	COC's can: 1. cause flare-ups of SLE 2. increase the thrombotic risk in SLE. They are absolutely contraindicated in SLE. However, a trial of COC is permissible in the SLE patient that is • has MILD SLE only • is NOT on Steroids
Smokers>35years	POP	Oestrogens	Oestrogens ↑ cardiac risk of IHD
Sickle Cell (think of in West Indians/Africans)	Progestogens Medroxyprogesterone acetate is the first choice of contraceptive (see Notes as for why)	Oestrogens	Sicke Cell TRAITS can use any method of contraception. However, in those with Sickle Cell DISEASE, try and avoid Oestrogens (↑thrombotic risk) Depot Progestogens can actually ↓ the frequency and severity of sickle cell crises!!!
IBD	Progestogens	Oestrogens	COC's can increase the thrombotic risk in IBD's

NB Unless Stated, Barrier Methods Can Also Be Used

Pill Timing

Day 1 of the cycle is always taken as the first day of a period (Explain this to the patient)

Timing	COC	POP	Injections	Implants	IUCD's
Essential Prerequisites	Exclude absolute contraindications Regular Cervix Screening	Try to avoid in the unreliable eg teenagers			Ensure Helathy Cervix & Vagina in all cases STD screeing Doctor should be trained!!!
NORMAL & Menstruating	Start Day 1 Take for 21 days consecutively Then 7 day pill free week if any other day → 7 day rule	Start Day 1 Taken continuosly NO PILL-FREE breaks Must be taken roughly at the same time each day (allow the women to choose a time she will find it easy to remember)	Day 1-5	Start Day 1-5	On any day Is immediately Effective Mirena : day 1-2
Post Partum	Start at Beginning of 4th post-partum week$^{\gamma}$	Start at Beginning of 4th post-partum week$^{\gamma}$	After 5weeks post partum	Within first 3 weeks	5-6th week post-partum (Otherwise Perforation risk/Menorrhagia high)
Lactating Female	Not Recommended Switch to POP on next menses	Safe			Safe
Post TOP/Miscarriage	Same day/next	Same day/next	Within first 5 days	Within first 5 days Preferably immediately	Can be inserted immediately after More usual to delay till 4-6th week post-partum for reasons above.
After PC4	start Day2 or 3	start Day 2 or 3	start day 2 or 3	start day 2 or 3	start day 2 or 3
When 7 day extra precaution rule applies	• If starting on any day other than Day 1 • If Missed Pill>12 hours • Vomiting/Diarrhoea	• If starting on any day other than Day 1 • If Missed Pill>3 hours • Vomiting/Diarrhoea	if inserted after day 5	if inserted after day 5	
Miscellaneous					Can be inserted in Post Caesarian Patients almost straight afterwards. Ther is no increase in expulsion rates!

If starting contraception on any day than recommended above, remember, advise 7 to 14 days extra precaution.

The Reason why Contraceptives are started on the 2nd/3rd day after the Emergency Contraception PC4 is that PC4 provides protection for upto 3 days. Hence, there is no need to take anything extra during this time.

γ Remember, The Earliest Time Ovulation Can Occur In A POST PARTUM NON-LACTATING Female Is On Day 28. Therefore, The Earliest Time That Contraception Should Be Encouraged In A NON-Lactating Female (Inorder To Prevent Pregnancy) Is On The Beginning Of The 4th Week Post Partum. If this is followed, no extra precautions are necessary.

Women which had Pre-eclamptic Toxaemia during pregnancy should not be restarted on COC until atleast 8 weeks postpartum ('cos they get a post-partum rebound thrombocytosis→DVT (aaaargh!). However, at the beginning of the 4th week post partum, other contraceptive precautions are required (eg barrier)

Missed Pills/Injections

COC		POP		Injections	
Time Limit	12 hours	Time Limit	3 hours	Time Limit	
<12 hours late Take the missed pill straightaway Remember to take the others on time No extra precaution required >12 hours late Take the missed pill straightaway Remember to take the others on time Extra precautions needed (eg condoms) for 7 days I've missed a pill but I only had two left. If you have missed a pill but there are less than 7 pills in the pack left anyway, then you must forget the pill-free week and start a new pack straightaway. 7 day rule applies I've missed a pill at the beggining or end of a pack. This will result in an increase in the number of days in the pill free week (and hence pregnancy). If the pill free week totals to >9 days, give emergency contraception.		<3hours late Take missed pill straightaway Remember to take the others on time No extra precaution required >3 hours late Take the missed pill straightaway Remember to take the others on time Extra precautions needed (eg condoms) for 7 days Although the contraceptive effect of Progestogens is re-established after 2 days of taking, the reason why a 7 day precaution rule is advised is simply for consitency ie one unform rule for all missed pills irrespective of COC/POP type.			

Remember
The Most Dangerous Pills To Miss In A COC Pack Are Those At The End Or Those At The Beginning Of A Pack. The Reason Being Is It Takes 7 Days To Break Free From The Suppressive Effect Of The COC.
Hence, Increasing The Pill Free Interval By Missing Pills Near This Time Will Increase The Chances Of Ovulation Occurring.

Side Effects Of Pills/Injections

Side Effects Of Pills/Implants/Injections = ***Side Effects Of Oestrogens and Progstogen's***

Oestrogens	Progstogen's
Nausea, dizziness, headaches	Mainly androgenic side effects:
Breast Tenderness	Acne
Weight Gain	Hisuitism (hairyness)
	Vaginal drying
	Libido
	Depression
	Ovarian Cysts (beware in Polycystic Ov. Syn)

Combined Pill	Progesterone Only Pill (The 'Minipill')	Injections	Implants
I) Breakthrough Bleeding ii) Progestogenic S/E's iii) Oestrogenic S/e's	i)Menstrual Irregularity ii)Progestogenic S/E's iii)Breast Discomfort	i)Menstrual Irregularity ii)Progestogenic S/E's	i)Menstrual Irregularity ii) Progestogenic S/E's

- ***A Note On Menstrual Irregularity***
  - Caution the user about this and explain that it is often worse initially and then improves
  - Menstrual Irregularities are more common with the POP than the COC
  - Knowledge of common side effects to expect has found to reduce the discontinuation rate
  - If Bleeding has still not settled after the initial period, try a different brand

The Contraindications

FOR ALL : Bleeding & Pregnancy

COC Contraindications the main ones

ABSOLUTE	RELATIVE
• Circulatory disease (past or present) IHD, severe HTN, hyperlipidaemias, bad diabetes, severe SLE PVD/DVT/PE TIA's/Stroke Women smokers>35years old Heart valve disease Migraine (Focal/Crescendo)	• Mild Arterial Disease Risk Factors eg smoking, controlled diabetes
• Liver Disease Any liver disease, Gall Stones, Prophyria, Ca or Jaundice	• Chronic Diseases Sickle Cell Disease, Mild SLE, Diabetes
• Oestrogen Dependant Neoplams Breast Ca Cervical Ca	• Partial Immobilisation eg wheelchair'd
• Conditions Affected By Sex Steroids Chorea Haemolytic Ureamic Syndrome Trophoblastic disease (Hydatiform Mole) if hcG levelsare still ↑)	• Diseases requiring Rx with Liver Inducing Drugs eg TB, Epilepsy
• Pregnancy	
• Vaginal Bleeding that has been undiagnosed	REMEMBER, Two relative contraindications equal one absolute

Progestogen Contraindications

Progetogens are Best Used In Situations Where Oestrogen Is Contraindicated

Absolute Contraindications

- SERIOUS COC side effects due to Progestogen component
- Severe Arterial Disease or High Cardiovasc. Risk
- Recent Trophoblastic Disease ie Hydatiform mole (makes it worse!)
- Undiagnosed Vaginal Bleeding
- Pregnancy

Contraindications POP

The Following are Relative Contraindications.

- Ectopic Pregnancy Risk/History
  - Although the POP does not increase the risk of ectopics, it doesn't decrease it either!!!
  - Choose something protective like IUCD with 350mm copper
- Ovarian Cyst History
  - Because of the variable effect of POP on ovarian function, they can cause Ovarian Cysts.
  - Such cysts are painful but settle with conservative treatment
  - So, avoid POP in someone with a past history of cysts!

Although there is no teratogenicity risk with POP's, they are best stopped once pregnancy is diagnosed!

IUCD Contraindications

Mainly Related To Risk Of Pelvic Infection & Its Consequences

Absolute

Permanent	***Temporary***
Dysmorphic Uterine Cavity	Pregnancy Suspicion
Ectopic History	Undiagnosed genital bleeding
Infections - HIV/AIDS - Endocarditis (post prosthetic valves/heart lesions)	Current Pelvic Infections Recent STD
Allergy (to IUCD component)/Wilsons Disease	Immunosuppression

Relative

Young & Nulliparous (ie<20yrs old)

- Uterine abnoramlities eg fibroids, Cervical Stenosis, retrograde uterus
- Mennorrhagia/Dysmenorrhoea

- Pelvic Infection history
- High STD risk lifestyle

- Valvular Heart Disease (without Endocarditis)
- Prosthesis which could be damaged by blood borne infection

- Diabetes/Immunocompromised (re infection)

Interactions With Other Drugs

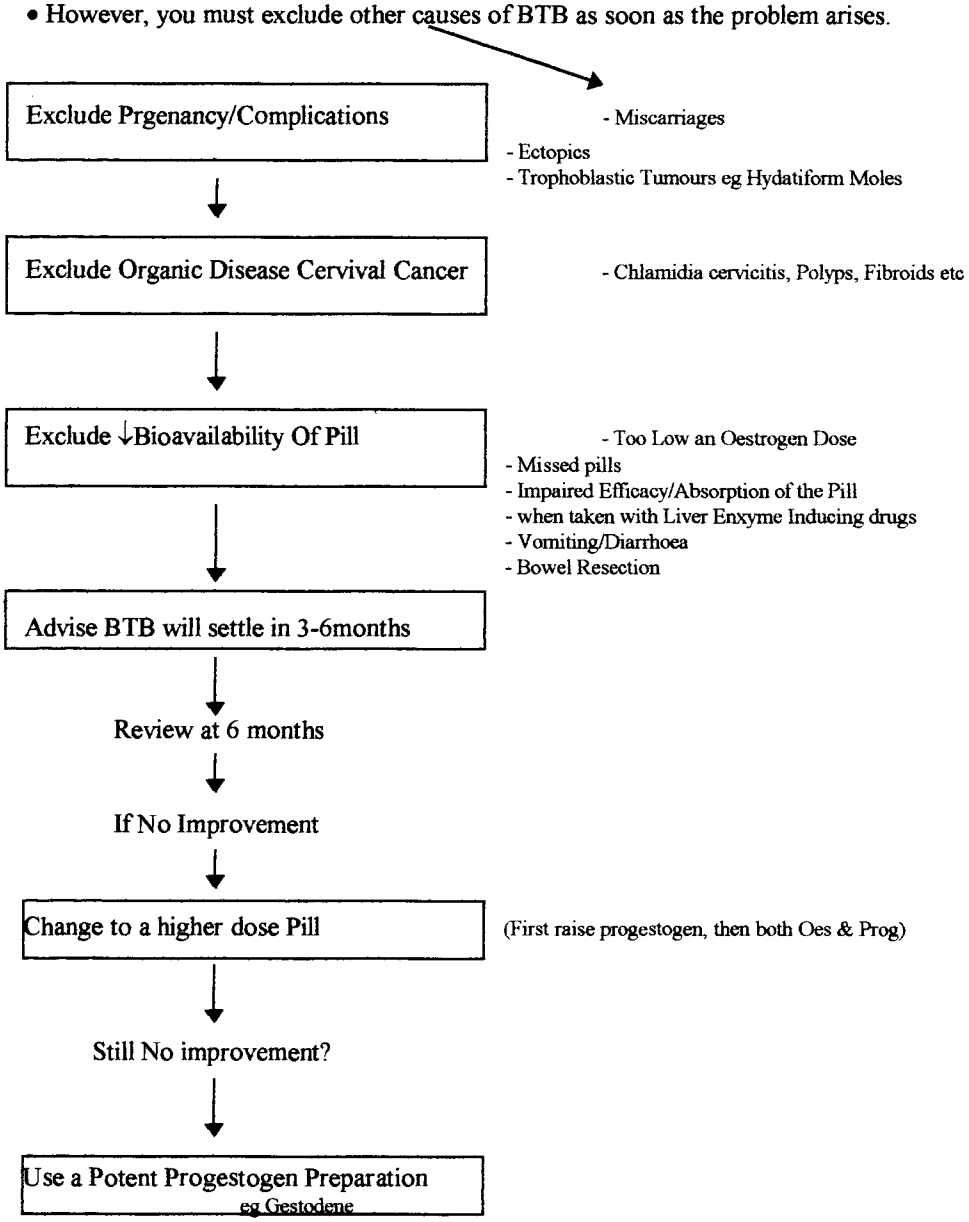
Interactions	COC	POP	Injections	Implants
Interactions				
<u>Liver Enzyme Reducing Drugs</u> eg Rifampcin Griseofulvin Most antiepileptics	↓ Contraceptive Efficacy	↓ Contraceptive Efficacy	sl. ↓	sl. ↓
<u>Antibiotics</u>	↓ Contraceptive Efficacy Take extra precaution for Duration of antibiotic AND a further 7 days after antibiotic stopped If these 7 days run into pill-free week, then miss pill free week and start a new pack straightaway.	NO EFFECT	None	Only with Griseofulvin & Rifampicin

Effects Of	COC	POP	Injections	Implants
Vomiting & Diarrhoea	Seven Day extra precaution rule	Seven Day extra precaution rule	No Effect	No Effect
Obesity	? No Effect	**? ↓ Contraceptive Efficacy esp if BMI>70kg (11 st)**		**sl ↓ in efficacy**
Diabetes	Affects Glucose & Insulin Metabolism!!!!	Less Effect than COC		

Management Of Break-Through Bleeding (BTB)

- Breakthrough bleeding does NOT indicate reduced contraceptive effects....explain to patient!

- Remember that breakthrough bleeding v. common in the first 3 months of starting an OCP.
- It will get less with time.
- However, you must exclude other causes of BTB as soon as the problem arises.



Surgery and the Combined Pill

MAJOR ELECTIVE Surgery & The COC

Main Worry : Vascular Thrombosis

- Stop COC 4 weeks prior to surgery
- Switch to a Progestogen Only Method Instead (POP/Injectable)
- Switch back to COC on 1st day of Next period post surgery
  (BUT women must be fully mobilising for >2 weeks)

MAJOR EMERGENCY Surgery & The COC

Main Worry: Vascular Thrombosis

- Stop COC (Unlikely she will need it during this time anyway)
- Remember, s/c heparin prophylaxis against DVT

The Menopause & Contraception

Aim: Despite women being very much less fertile during the period approaching menopause (the so called Peri-menopausal Period), pregnancy is nonetheless still a possibility.
Therefore, Contraception during this Perimenopausal period is important if pregnancy is not desired.

When is She Menopausal & When Is She Peri-Menopausal?
Simple:

12 month history of Ammenorrhoea + Vasomotor Symptoms = MENOPAUSAL

The 12 months prior to ΔMenopause = PERIMENOPAUSAL

Perimenopausal : Contraception Still Advised (Pregnancy still possible despite much lower fertility)
Menopausal : No Contraception Required (She can regard herself as infertile)

Methods Of Contraception

Method Of Contraception	Okay Or NOT Okay	Notes
Natural Methods	Okay	Okay providing they are taught well and user skill is good. Patient Compliance important.
Barrier Methods	Okay	Good if the users are very experienced with these methods Advise to use spermicides with them These methods also protect against STD's
IUCD's	Okay	But Remember, it is not suitable for lady with menorrhagia/dysmennorrhoea
Levonorgesterel-IUD (ie IUS)	?The Best Method	Best because • Contraceptive Efficacy • ↓ Bleeding ie Ammenorrhoea • Progesterone Protective Effects ie on endometrium/infection etc
POP's	V. Good	The POP often leads to ammenorrhoea. You may need to do a pregnancy test to reassure the user.
COC's	Depends if you are going to use it, use a low oestrogen prep.	Main Problem with COC & Menopause is the Cardiovascular Risk Status. ***<45 yrs old + Non-Smoker, NO IHD Risk Factors*** COC Okay BUT, you need to stop it at age 45 Advise different method eg Barrier ***>35 yrs old + Smoker or other IHD Risk Factors +ve*** DO NOT USE COC
Injections	Okay	
Implants	????	Implants last 3-5 years. Therefore, much is wasted if you are only trying to protect the women during her last few cycles!
Coitus Interruptus (Withdrawl Method)	NOT Okay	Too Risky. Doesn't provide much protection against pregnancy.
Sterilization	NOT Okay	Although very effective, seems a bit daft to go through this just to cover the last few cycles left!

Ensure that the Peri/Menopausal Women Is Aware Of the Limitations Of Each method.
Then Let Her Decide (Freedom Of Choice)

Can You Use FSH levels as an Indicator Of Menopause

Ans- Yes but not reliably - don't rely on it!!!

In theory, a high FSH (as a result of negative feedback of low oestrogen levels from an atrophic ovary) should imply menopause. However, during the onset of the menopausal period, the FSH levels can vary a lot. Hence, unreliability.

Ammenorrhoea - Contraception vs Menopause!

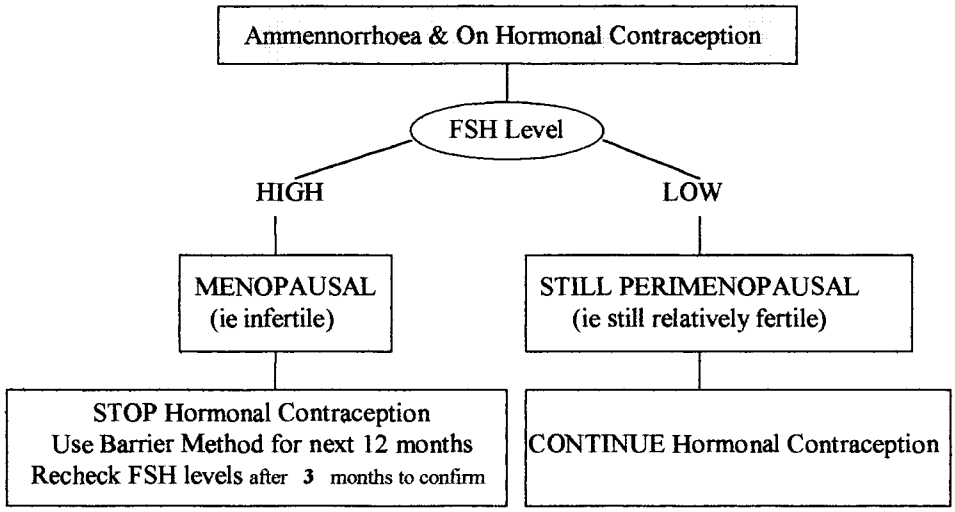
I Started This Perimenopausal Women On Hormonal Contraceptive Pills to Cover Her. She Has Now Developed Ammennorhoea. Is this drug Induced or has the Menopause set in. How do I Tell?

Ammenorrhoea is due to Ovulatory Suppression caused by either

1. Hormonal Contraception
2. The Menopause

Hormonal contraception can therefore mask the menopause hence making it difficult to decide when the Menopause has set in.

The following diagram may help in decision making



Remember that Menopause May Be Confirmed by the Presence Of Vasomotor Symptoms (ie headaches, flushing etc)

Is There Any Difference Between Natural and Synthetic Oestrogens?

Yes-

Natural Oestrogens are Cardio-**Protective** (ie are not Prothrombotic)
Synthetic Oestrogens are Cardio-**Damaging** (ie are Prothrombotic!!!)

Natural Oestrogens are found in HRT

Synthetic Oestrogens are found in COC

The dose of Oestrogen used is much lower in HRT than COC's

And Finally, Emergency Contraception In Peri-Menopausal Women

Use the Schering PC4 Emergency Contraceptive Pill (also called Yuzpe Regime).

See Under Emergency Contraception for further details.