Contraception and Cervical Cytology

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  - www.who.int/reproductive-health/publications/mec/
  - www.reproductiveaccess.org/contraception/WHO_chart.htm
- WHO Selective Recommendations for Contraceptive Use 2008
  - http://www.who.int/reproductive-health/publications/spr/index.htm

U.S. Medical Eligibility Criteria for Contraceptive Use, 2010
Adapted from the World Health Organization
Medical Eligibility Criteria for Contraceptive Use, 4th edition
WHO Medical Eligibility Criteria

<table>
<thead>
<tr>
<th>Definition</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 No restriction in contraceptive use</td>
<td>Use the method</td>
</tr>
<tr>
<td>2 Advantages generally outweigh theoretical or proven risks</td>
<td>More than usual follow-up needed</td>
</tr>
<tr>
<td>3 Theoretical or proven risks outweigh advantages of the method</td>
<td>Clinical judgment that this patient can safely use</td>
</tr>
<tr>
<td>4 The condition represents an unacceptable health risk if the method is used</td>
<td>Do not use the method</td>
</tr>
</tbody>
</table>

**Hysteroscopic Sterilization**

- **Essure Procedure®**
  - Micro-insert is placed in proximal portion of each fallopian tube lumen... expands upon release and permanently anchored in the tube

- **Adiana Permanent Contraception®**
  - Radiofrequency burn in the proximal portion of each tube lumen, then rice-grain sized silicon matrix inserted

- Subsequent benign local tissue in-growth over a 3-month period... *scarring blocks fallopian tube*

**Essure System Placement**

-Easier system stabilization with the sleeker handle

-Valved DryFlow™ introducer: to minimize fluid flush back
Essure System Placement

Hysteroscopic Sterilization: Candidates

- Women who prefer this approach to laparoscopy
- Especially, for women with …
  - Obesity (BMI of ≥ 45)
  - Abdominal mesh that prevents laparoscopy
  - Permanent colostomy
  - Multiple abdominal/pelvic surgeries (adhesions)
  - Use of anticoagulation medications
  - Medical problems that contraindicate general anesthesia

Hysteroscopic Sterilization: Post-Placement Follow-Up

- Low pressure hysterosalpingogram (HSG) is recommended 3 months after procedure
  - Protocol can be downloaded from websites
  - Check whether radiologist performs before referral
- If occlusion is not demonstrated, repeat HSG three months later
- If 2nd HSG shows open tube(s), procedure has and another method will be necessary

Sterilization Comparisons

<table>
<thead>
<tr>
<th></th>
<th>Hysteroscopic Sterilization</th>
<th>Tubal Ligation</th>
<th>Vasectomy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incisions</td>
<td>None</td>
<td>1-2</td>
<td>1-2</td>
</tr>
<tr>
<td>Typical anesthesia</td>
<td>Local or IV Sedation</td>
<td>General</td>
<td>Local</td>
</tr>
<tr>
<td>Peritoneal entry</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Resume activities</td>
<td>1-2 days</td>
<td>4.4 days</td>
<td>2 days</td>
</tr>
<tr>
<td>Effectiveness rate</td>
<td>E: 99.7% @ 5 yrs</td>
<td>98.82% @ 4 yrs</td>
<td>98.87% @ 5 yrs</td>
</tr>
<tr>
<td>A: 98.4% @ 3 yrs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E: Essure®</td>
<td>A=Adiana®</td>
<td></td>
</tr>
</tbody>
</table>
**Why LARC* Methods?**

*Long Acting Reversible Contraception*

- IUCs and Implants are “forgettable”
  - Single motivational act for insertion
  - Do not require episodic, daily, weekly, monthly, or every 12 week patient initiative for use
  - Give continuous 24/7/365 contraceptive protection
  - No need to take time to refill prescriptions
  - Long term protection...3-10 years

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**Intrauterine Contraception in the U.S.**

<table>
<thead>
<tr>
<th></th>
<th>Copper T-380</th>
<th>LNG-IUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanism</td>
<td>Spermicidal effect of copper</td>
<td>Thickening of cervical mucus</td>
</tr>
<tr>
<td>Duration</td>
<td>10 years</td>
<td>5 years</td>
</tr>
<tr>
<td>Efficacy</td>
<td>0.8 failures/hwy</td>
<td>0.2 failures/hwy</td>
</tr>
<tr>
<td>Benefit</td>
<td>No hormones</td>
<td>Less bleeding</td>
</tr>
<tr>
<td>Non-contraceptive use</td>
<td>None</td>
<td>Menorrhagia</td>
</tr>
<tr>
<td>Retail price 2011*</td>
<td>$494</td>
<td>$703</td>
</tr>
</tbody>
</table>

* Pricing may differ by contract and in the 340B program

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**Rate of PID by Duration of IUC Use**

- Rate per 1000 Woman-Years
  - Baseline PID risk: 1-2 cases /TWY
  - n=20,000 women

Fertility Rates in Parous Women After Discontinuation of Contraceptive

<table>
<thead>
<tr>
<th>Months After Discontinuation</th>
<th>IUC</th>
<th>OC</th>
<th>Diaphragm</th>
<th>Other methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>100</td>
<td>80</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>12</td>
<td>80</td>
<td>60</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>24</td>
<td>60</td>
<td>40</td>
<td>20</td>
<td>0</td>
</tr>
</tbody>
</table>


Indications for IUC Use

- Both IUC products
  - Long term contraception in fertile women
- US-MEC categories for IUD Use
  - Menarche to age 20: WHO-2
  - Age 20 and older: WHO-1
  - Nulliparity: WHO-2
  - Parous: WHO-1

US Medical Eligibility Criteria for Contraceptive Use, 2010
WHO Medical Eligibility Criteria for Contraceptive Use, 2009

Both IUC Products

2010 US Medical Eligibility Criteria

<table>
<thead>
<tr>
<th>Category 4</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current GC/CT/purulent cervicitis/PID/pelvic TB</td>
<td>Postpartum (48h-4 wk)</td>
</tr>
<tr>
<td>Post-partum endometritis</td>
<td>Benign GTD with ↓ hCG</td>
</tr>
<tr>
<td>Post-septic abortion</td>
<td>Increased risk of STIs **</td>
</tr>
<tr>
<td>Cervical/endometrial cancer</td>
<td>Ovarian cancer</td>
</tr>
<tr>
<td>Malignant GTD or ↑ hCG</td>
<td>AIDS</td>
</tr>
<tr>
<td>Unexplained vaginal bleeding</td>
<td>** very high individual risk of exposure to GC or Ct</td>
</tr>
<tr>
<td>Uterine anomaly/fibroids*</td>
<td></td>
</tr>
</tbody>
</table>

* with distortion of cavity

US Medical Eligibility Criteria 2010

<table>
<thead>
<tr>
<th>Category 4</th>
<th>Category 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNG-IUS only</td>
<td>Breast cancer (&gt; 5 yrs NED)</td>
</tr>
<tr>
<td>Current breast cancer</td>
<td>Liver tumors, severe cirrhosis</td>
</tr>
<tr>
<td>SLE, anti-phospholipid Ab +</td>
<td></td>
</tr>
<tr>
<td>Copper IUC only</td>
<td>Severe platelet reduction</td>
</tr>
</tbody>
</table>
**Etonogestrel [ENG] Implant: Implanon**

- Single rod implant effective for 3 years
- Inserted subdermally between bicep and tricep
  - Kit has sterile, disposable preloaded applicator
  - Avg insertion takes 1 minute; removal 2.6 minutes
- Extremely effective
  - Pearl index: 0.38 failures per 100 couples/year
  - Primary mechanism is inhibition of ovulation
  - Secondarily increases viscosity of cervical mucus
- Very rapid return of fertility

**ENG Implant Insertion System**

**Initiation of ENG Implant**

2010 US Medical Eligibility Criteria

- **US MEC-4**
  - Current breast cancer
- **US MEC-3**
  - Past breast cancer (>5 years without recurrence)
  - SLE, antiphospholipid antibody positive
  - Severe cirrhosis, hepatocellular adenoma, hepatoma
  - Unexplained vaginal bleeding (before evaluation)

**ENG Implant: Vaginal Bleeding**

- Counseling points
  - You will have fewer bleeding episodes
  - You will have the same or fewer bleeding days
- But,
  - Your bleeding days, episodes will be unpredictable
  - You may have more spotting days than before
**ENG Implant: Vaginal Bleeding**
- Bleeding pattern is unpredictable (all unscheduled)
- No trends with time
- Smaller amount of bleeding than cycling women
- Continuous progestin prevents EM hyperplasia; endometrial biopsy unnecessary for this purpose
- Management
  - Counseling and reassurance
  - Ibuprofen 400-600 mg TID for 7-days, or
  - Estradiol 1-2 mg PO QD for 10-14 days, or
  - OCs, given for 2-3 cycles

**Emergency Contraception (EC)**
- Reduces risk of pregnancy by 89%
- Essentially no contraindications
- Does not harm an established pregnancy
- Can be given at any point in cycle
- No exam or pregnancy test required
- Effective up to 5 days after unprotected sex

**EC Products**
- FDA changed the age threshold for OTC dispensing
  - Available without prescription if 17 y.o. or older
  - Prescription only for women under 17 y.o.
  - Pharmacist may require proof of age
- **Plan B® One-Step** (now Teva; previously Duramed)
  - Single dose tablet: 1.5 mg levonorgestrel
  - Labeled for 72 hours from last intercourse
  - Plan B (2 tablet product) is no longer available
- **Next Choice®** (generic/ Watson Pharma)
  - Same as the two tablet Plan B® product
  - Labeling: 1 tab Q12 hours; off label: 2 tablets at once

**Ulipristal Acetate (UPA): Ella®**
- Selective progesterone receptor modulator
- Taken orally in single 30 mg dose
- Mechanism of action
  - Prevents ovulation, with follicles up to 18-20 mm
- Failure rate vs. LNG (meta-analysis 0-120 hr)
  - UPA 1.3% vs. LNG 2.2% [Odds Ratio = 0.55]
  - Failure rate < LNG @ 72-120 hrs; equal from 0-71 hr
- Labeled in U.S. for use up to 120 hrs after intercourse
- Ella® is available by prescription-only
**Body Weight and Contraception**

<table>
<thead>
<tr>
<th>Weight gain</th>
<th>OC</th>
<th>Patch</th>
<th>DMPA</th>
<th>Implant</th>
<th>IUC</th>
<th>Tubal</th>
</tr>
</thead>
<tbody>
<tr>
<td>↑ failures in obese women</td>
<td>No ✓</td>
<td>Yes *</td>
<td>No ✓</td>
<td>No ∆</td>
<td>No ∆</td>
<td>No ∆</td>
</tr>
<tr>
<td>Medical risk in obese women</td>
<td>No ∆</td>
<td>Yes #</td>
<td>No ∆</td>
<td>None</td>
<td>Difficult insertion</td>
<td>Surgical complications</td>
</tr>
<tr>
<td>WHO-MEC</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>Not rated</td>
</tr>
</tbody>
</table>

*Mainly in obese adolescents and those who experience a 
≥5% body weight increase within 6 months of DMPA initiation

# In women ≥90 kg, increase of 2-4 failures/100 couples/year

**OC Cycle Variations**

<table>
<thead>
<tr>
<th>Regimen</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick start</td>
<td>Allows immediate method initiation any time in cycle</td>
</tr>
<tr>
<td>Shortened HFI (24 d on/4 d HFI)</td>
<td>More forgiving of late OC cycle start (probably improving efficacy)</td>
</tr>
<tr>
<td>Extended cycle</td>
<td>Fewer menstrual events and symptoms</td>
</tr>
<tr>
<td>• 84 d on/7 HFI</td>
<td>Menses 4 time per year</td>
</tr>
<tr>
<td>• 84 d on/7 E only</td>
<td></td>
</tr>
<tr>
<td>• 365 days on</td>
<td>No menstrual periods for 1 year</td>
</tr>
</tbody>
</table>

HFI: hormone free interval

**Cervical Cytology Screening Guidelines**

**ACOG 2009**

<table>
<thead>
<tr>
<th>Age</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women under 21 yrs old</td>
<td>Avoid screening</td>
</tr>
<tr>
<td>21-29 years old</td>
<td>Screen every 2 years</td>
</tr>
<tr>
<td>30 to 65 or 70 years old</td>
<td>May screen every 3 years</td>
</tr>
<tr>
<td>65 or 70 years old and older</td>
<td>May discontinue screening</td>
</tr>
</tbody>
</table>

GUIDELINE SHOCK

- New national guidelines are often released before older ones are fully implemented
- Recommendations may be the opposite of traditional practice…it’s difficult to quickly turn the ship 180 degrees!!
- Organizational guidelines may differ in content and timing of release
- Rationale for changes are often not well explained
- No one tells the consumer!!
Why Wait Until 21 To Start Cytology?

▪ Most HPV infections are transient
▪ If HPV persists, the process of carcinogenesis is long
  – When CIN 3 persists, >10 years are required for the lesion to acquire the capacity to become invasive
▪ Spontaneous regression is common
  – Regression CIN 2: 65% @ 18 mos; 75% @ 36 mos
▪ In women 15-19 years old, 1-2 cases per million/year
▪ In teens, screening does not reduce mortality

ACOG Practice Bulletin No. 109, Dec 2009

Why Wait Until 21 To Start Cytology?

▪ The adverse consequences of over-screening and over-management of adolescents who have CIN
  – Psychological effects of screening, abnormal results, and treatment, including effects on sexual function
  – Pregnancy outcomes following LEEP show a doubling or tripling of the rate of preterm birth
▪ Screening women under 21 may be harmful and lacks benefit
  – Don’t begin until 21, regardless of first intercourse

ACOG Practice Bulletin No. 109, Dec 2009

Cytology Screening of Women 21 and Older

Cervical cancer screening is recommended
▪ Every 2 years for women aged 21-29
▪ Every 3 years for women 30 years and older if they …
  – Have had 3 consecutive negative cytology screening test results, no history of CIN 2-3, are not HIV-infected, are not immunocompromised, and were not exposed to DES in utero OR
  – Received negative test co-test results on both cervical cytology screening and HPV DNA testing and are considered low risk

ACOG Practice Bulletin No. 109, Dec 2009

Cytology Screening in High Risk Women

▪ Do not increase the screening interval beyond annual testing for women who are
  – HIV-positive
  – Immunosuppressed (e.g., transplant)
  – Were exposed in utero to diethylstilbestrol
▪ Follow guidelines for women who have been treated for CIN 2 or 3 or adenocarcinoma in situ

ACOG Practice Bulletin No. 109, Dec 2009
High Risk HPV DNA Testing
ASCCP Clinical Update 2009 @ ASCCP.org

Clinically useful for
- Primary screening (HPV+Pap), age 30 and over
- Triage of ASC-US or AGC Paps (≥21 years old)
- Postmenopausal women with LSIL
- Post-colposcopy and post-treatment follow-up, in lieu of Pap smears
- Triage of women who are HPV HR pos/Pap negative with HPV 16/18 genotyping (Cervista™ HPV 16/18)

High Risk HPV DNA Testing
ASCCP Clinical Update 2009

HR HPV testing and genotyping not recommended
- Any application in women under 21 years old
- If inadvertently done, a positive result should not influence management
- (Reflex) triage of ASC-H, LSIL, HSIL Paps
- Routine screening in women before 30 years old
- In women considering vaccination against HPV
- For routine STD screening
- Evaluation of patients with genital warts
- Evaluation of sex partners
- As part of a sexual assault evaluation

What Are Indications for Colposcopy?-1
- Cytology result with ASC-H, HSIL or suspicion of cancer
- Cytology with LSIL in a women ≥21 years old (unless pregnant or post-menopausal)
- Cytology with atypical glandular cells (AGC), unless AGC-atypical endometrial cells and positive endometrial sampling

What Are Indications for Colposcopy?-2
- Cytology showing ASC-US
  - Women who are unlikely or unwilling to return for follow-up
  - Repeat cytology test with ASC-US or worse performed during observation period (except adolescents)
- High-risk HPV DNA present at initial or subsequent testing (except adolescents)
What Are Indications for Colposcopy?-3

- Cervical leukoplakia (visible white lesion) or other unexplained cervical lesion regardless of cytology result
- Unexplained or persistent cervical bleeding regardless of cytology result