But wait....Is there no bad news?

Notes:

Dr. Felicia Stewart, was the beloved and respected co-author of 11 editions of *Contraceptive Technology*, who inspired researchers, clinicians, patients and activists with her wisdom, sense of humor and experience. Felicia warned family planning clinicians and counselors to beware of presenting only one side of any contraceptive or drug. So the contraceptives described in the first three pages of this document **So Much More** have remarkably well documented noncontraceptive benefits. But what about their major and minor problems?

First, Depo-Provera injections have the lowest continuation rates of any contraceptive because of the menstrual irregularities, missed periods, and weight gain associated with Depo use *[Trussel J. IN CT 2007 - 26-53%; Sangi-Haghpeykar - 29%; Schwallie - 59.4%]*. Only careful structured counseling checklists (see pages 9 & 150 of *Managing Contraception Limited Edition 2016*) have been associated with higher Depo continuation rates *[Canto-DeCetina TE, Effect of counseling to improve compliance in Mexican women receiving DMPA, Contraception 2001]*. If you need any convincing about the effectiveness of simple checklist in modern medicine, please put Dr. Atul Gawande's book, *The Checklist Manifesto*, onto your "must read" list. Do this! It raises this important question: Why do doctors seem to have so much more trouble with checklists than do nurses?

Second, levonorgestrel IUDs (Mirena, Liletta and Skyla) lead to more bleeding days than non-bleeding days in the first month of use. Mirena insertion may also cause severe menstrual cramping and pain in the days following insertion and occasionally must be removed for these reasons.

Third, when combined pills arrived on the scene in 1960 they were soon found to be associated with blood clots, other serious cardio-vascular complications, and even death. These complications may still occur although they are less common with current low-dose pills, patches and rings.

Women using estrogenic birth control pills, patches or rings should know the "A – C – H – E – S" warning signals. These are the first letters of the symptoms she should watch out for.

Abdominal pain - Blood clot in pelvis, liver or mesentric vein

Chest pain - Blood clot in lungs, cough, cough up blood, shoulder pain or pain down arm, fatigue, shortness of breath, flu-like symptoms or heart attack

Headaches - Severe pain, visual problems, numbness or weakness in an extremity

Eye problems - retinal vein thrombosis, tunnel vision, partial or complete loss of vision

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Message: Contraceptives are So Much More than just contraceptives.

There are medical conditions for which the **best** approach today is one of our current contraceptives. Decreasing the number of missed days of work or school due to severe menstrual cramps, pain or bleeding, may benefit women from 10 to 50 years of age whether or not they need contraception. Our current contraceptives are a many-faceted group of drugs. By preventing colon cancer, ovarian cancer, and endometrial cancer, providing contraceptives may be life-saving to some women who have no need for birth control at all.

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Notes:

1. From her first period until her last period, the most common reason the average woman goes to her physician is with regard to a menstrual cycle problem: heavy menstrual bleeding, spotting at several times in the cycle, menstrual migraine headaches, painful menses, endometriosis, Poly Cystic Ovarian Syndrome, premenstrual syndrome and a number more, to be sure. Contraceptives may be extremely beneficial for women with one or several of these problems.

2. The single most effective non-surgical approach to both endometriosis and heavy menstual bleeding (HMB) is the Levonorgestrel IUD called Mirena, Liletta, Kyleena and Skyla. *[Gupta, 2013] [Clark A.,1995] [Cote, 2002] [Vercellini, 2001] [Fidele,1997]*

3. Ovarian cancer is prevented by combined birth control pills and the protective effects last for 3 decades after a woman has used pills for 10 or more years and then stops them. *[Vessey, 1995] [Ness, 2000]*

4. Endometrial cancer (cancer of the lining of the uterus) is prevented by the LNG IUD (Mirena), by combined birth control pills and by Depo-Provera injections. Endometrial hyperplasia is now **treated** by insertion of one of the four LNG IUDs. *[Vessey, 1995]*

5. By decreasing menstrual bleeding and pain and by decreasing a woman's fear of pregnancy and certain cancers, contraceptives may increase a couples enjoyment of sex.

Contraceptives are So Much More than ways to avoid unwanted pregnancies.

1. Menstrual cycle problems

1a. Heavy menstrual bleeding (HMB) is no longer solely defined by the amount of blood a woman looses (80cc). The new definition is: "heavy bleeding has happened when a woman says it has happened". HMB affects 9-14% of women but 30% of women consider their bleeding to be heavy *[Nelson A. and Baldwin S. IN Hatcher Contraceptive Technology 20th ed., 2011]*. Because of missed work, women with HMB earn an average of $1,692 less annually than women with normal menses *[Cote, 2002]*. Diseases that may cause HMB include fibroids (leiomyomata), adenomyosis, endometriosis, endometrial and uterine polyps, endometrial hyperplasia and cancer, and diseases of disordered hemostasis. Only about half of women with HMB have an anatomical pathology identified at hysterectomy *[Clark, 1995]*.
CONTRACEPTION: The LNG IUD (Liletta & Mirena) was found to be more effective than prostaglandin inhibitors combined pills, progestin only pills and Depo-Provera at decreasing HMB *[Gupta, 2013]*. Data strongly suggest that tubal sterilization does not cause menstrual abnormalities *[Fritz Speroff, 2005]*.

1b. Painful menses (Dysmenorrhea) includes both pain and cramping. When taking a history ask women using both terms. Dysmenorrhea may be secondary to adenomyosis, endometriosis, pelvic adhesions, neoplasia and pelvic infections.

CONTRACEPTIVES that may improve dysmenorrhea include the LNG IUD (Mirena, Liletta, Kyleena, or Skyla), Depo-Provera, Depo-sub Q 104, combined pills, NuvaRings, patches (now Xulan or Mylan), and progestin-only pills. Heat, exercise, wraps, NSAIDs, and alcohol may help to diminish pain. Exercise may increase or decrease dysmenorrhea.

1c. Endometriosis is an important cause of severe dysmenorrhea. It consists of endometrial glands and stroma outside the uterus. Asymptomatic endometriosis is present in 12 to 32% of reproductive age women with pain, in 9-50% of infertile women and in appproximately 50% of teens with chronic pain *[Fritz Speroff, 2011]*.

CONTRACEPTION: Treatments that diminish or eliminate menses often successfully reduce symptoms of dysmenorrhea caused by endometriosis: The LNG IUD (most effective *[Vercellini, 2013] [Fidele,1997]*), Depo Provera and Depo sub Q Provera 104 and combined pills preferably taken continuously can all improve a woman's endometriosis. In the 1950's, combined pills taken continuously were used to treat endometriosis before they were approved in 1960 for contraception.

1d. Premenstrual syndrome (PMS) See page 557 of the 20th Ed. of Contraceptive Technology to find the very complicated diagnostic criteria for premenstrual dysphoric disorders.

CONTRACEPTION: Contraceptives most likely to have a beneficial effect are those that suppress ovulation and reduce the number of withdrawal bleeding episodes. Extended-cycle dosing of combined pills, vaginal contraceptive rings and Depo-Provera injections reduce the number of withdrawal bleeding episodes (and associated symptoms). Combined pills taken 21/7, 21/7, 21/7 may decrease or increase PMS symptoms. Randomized, placebo controlled, double blinded studies found that both mood disorders and physical complaints of PMDD will decrease by about 50% in women on a 3mg drospirenone pill *[Yonkers , 2005]*.

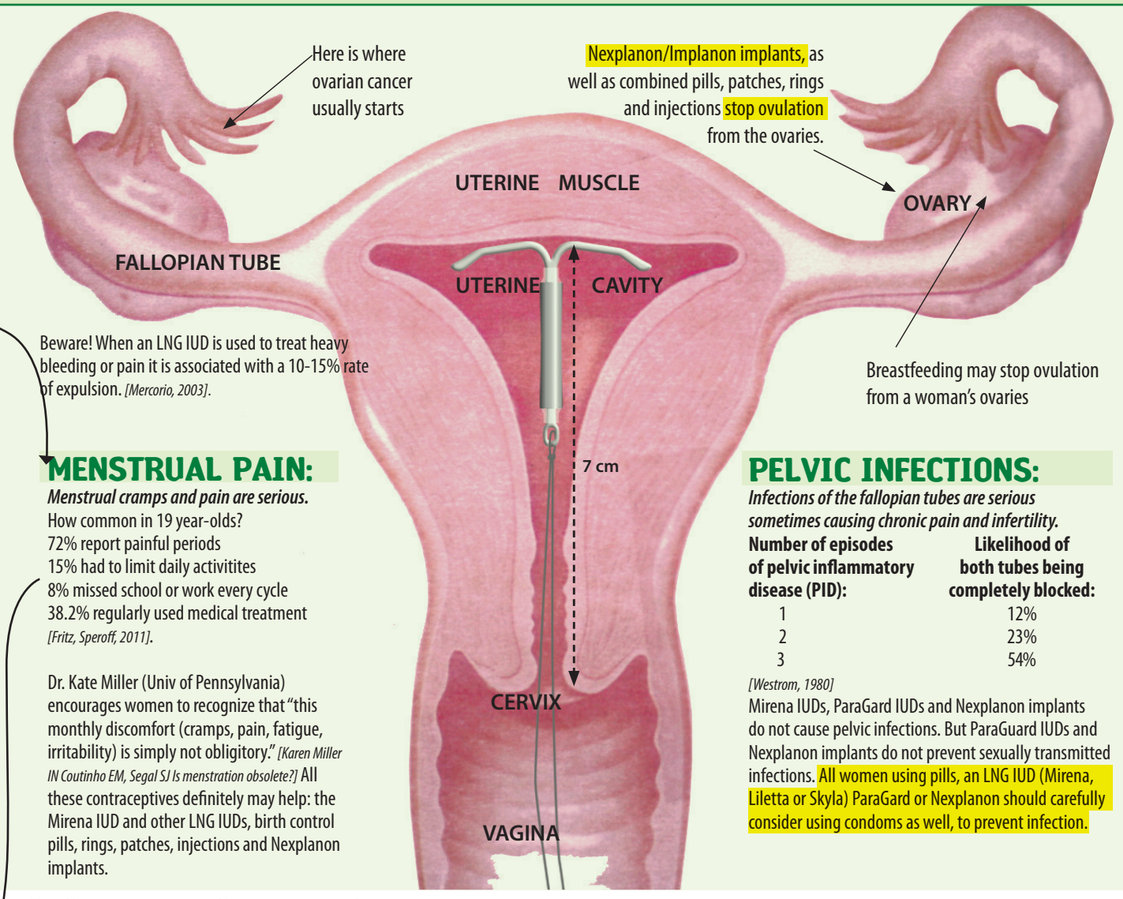
1e. Perimenopausal Issues If a perimenopausal woman is provided an estrogen, the progestin in a Levonorgestrel IUD may be better tolerated than Provera.

Case

A 14 year old rural Geogian teenager misses 2-3 days of school every month because of severe menstrual pain. She has never had intercourse. The youth leader at her conservative church says she will give up her appointment with her gynecologist so that he could see and prescibe pills for the teenager to diminish the menstrual cramps and pain.

The girl's father called his daughter both a "slut" and a "whore" for considering starting birth control pills. After 3 more cycles of more pain and missed school, the father changed his position. She starts birth control pills and her pain resolved almost completely.

Notes:



MENSTRUAL PAIN:

Menstrual cramps and pain are serious.
How common in 19 year-olds?
72% report painful periods
15% had to limit daily activitites
8% missed school or work every cycle
38.2% regularly used medical treatment
[Fritz, Speroff, 2011].

Dr. Kate Miller (Univ of Pennsylvania) encourages women to recognize that "this monthly discomfort (cramps, pain, fatigue, irritability) is simply not obligitory." *[Karen Miller IN Coutinho EM, Segal SJ Is menstration obsolete?]* All these contraceptives definitely may help: the Mirena IUD and other LNG IUDs, birth control pills, rings, patches, injections and Nexplanon implants.

PELVIC INFECTIONS:

Infections of the fallopian tubes are serious sometimes causing chronic pain and infertility.

Number of episodes of pelvic inflammatory disease (PID):	Likelihood of both tubes being completely blocked:
1	12%
2	23%
3	54%

[Westrom, 1980]
Mirena IUDs, ParaGard IUDs and Nexplanon implants do not cause pelvic infections. But ParaGuard IUDs and Nexplanon implants do not prevent sexually transmitted infections. All women using pills, an LNG IUD (Mirena, Liletta or Skyla) ParaGard or Nexplanon should carefully consider using condoms as well, to prevent infection.

2. Cancer and Contraceptives

2a. Ovarian cancer The most lethal of the female reproductive track cancers, may originate in either the ovary itself or in the fimbriated ends of the fallopian tubes that hover directly over the ovaries. The five year survival rate of women with ovarian cancer is about 44.6% *[Fritz, Speroff, 2011]*.

CONTRACEPTION: Possibly protection against ovarian cancer is the most important noncontraceptive benefit of pills. The protective effect of combined pills ranges from 40-80% and persists for 20-30 years after stopping pills *[Int J. Cancer, 1991] [Vessey,1995]*. Depo-Provera has a comparable protective effect against ovarian cancer. For years it has been known that tubal sterilization lowers a woman's risk for ovarian cancer. Because many lethal forms of ovarian cancer start in the distal fallopian tubes it is often recommended that tubal sterilization be accomplished by removal of the distal fallopian tubes via salpingectomy rather than by tieing, removal of a small portion, burning, clipping or placement of an Essure device be used to accomplished tubal sterilization.

2b. Endometrial hyperplasia and cancer are more likely to happen in women with circulating estrogen but without progesterone (women with unopposed estrogen).

CONTRACEPTION: The reduction of endometrial cancer is about 80% in women using combined pills and Depo-Provera *[Int J. Cancer, 1991]*. The LNG IUD (Liletta & Mirena) prevents endometrial hyperplasia and endometrial cancer and is used to treat hyperplasia. The LNG IUD may also be placed to protect against endometrial cancer if a women is menopausal and taking an estrogen. The smaller LNG-IUD, Skyla, may be easier to insert for some menopausal women.

2c. Colon cancer

CONTRACEPTION: The Nurses Health Study reported a 40% reduced risk of colorectal cancer with 8 years of previous use of oral contraceptives. Fritz and Speroff conclude that ***"Steriod contraception should be offered to women with a strong family history of colorectal cancer"*** *[Fritz, Speroff, Clinical Gynecologic Endocrinology and Infertility 8th Ed., p1001, 2011]*.

3. Fibroids (myomata) of the uterine wall can

cause pain, heavy bleeding, anemia, and lead to failure of implantation of a fertilized egg or to repeated early miscarriages. 99.5% of fibroids are benign. 20% of women over 30 have some evidence of fibroids. Most women have no symptoms at all.

CONTRACEPTION: The LNG IUD has been used to control heavy bleeding from fibroids and may decrease fibroid size *[Stewart, 2015][Mercorio, 2003]*. Some combined pills are associated with reduced risk of hospital referral for fibroids *[Guilleband, 2009]*. Low dose COCs do not stimulate fibroid growth but do decrease menstrual bleeding from fibroids *[Friedman, 1995]*. DMPA effectively decreases blood loss from myomas and may shrink myomas *[Venkatachalam, 2004]*. Many insurance carriers specify women with small to moderate-sized fibroids must fail on a trial of medical management (usually with combined pills) for menorrhagia before they can be considered candidates for surgical therapies *[Nelson A, Cwiak C IN Contraceptive Technology 20th Ed 2011, p269]*.

4. Polycystic Ovarian Syndrome (PCOS) A common

cause of infrequent bleeding that is associated with androgen excess (hirsutism, acne, male pattern balding), an ovulation, obesity and infertility. Ultrasound reveals polycystic-appearing ovaries with at least thirteen 2 to 9 mm preantral folicles *[Nelson A. and Baldwin S. IN Hatcher Contraceptive Technology 20th ed. 2011, p543]*. Women with PCOS are at greater risk of developing diabetes, endometrial hyperplasia and endometrial cancer. Lifestyle changes to lose weight for long periods of time are important.

CONTRACEPTION: Progestins from an LNG IUD, Depo-Provera injections, and progestin-only pills provide substantial endometrial protection against endometrial cancer and good contraceptive efficiency. If a woman desires a monthly period and treatment of acne, combined pills may be more appropriate unless a woman is at increased risk for blood clots.

5. Acne is due to hair follicle occlusion. It can lead to follicle distention below the skin

or impacted follicles with darkened masses that communicate with the exterior (blackheads). Larger cystic dilitations may lead to scarring. The face and upper torso are the areas most often affected.

CONTRACEPTION: It is generally accepted that all formulations of combined pills cause some improvement in acne in most users. "Low dose OC's improve acne regardless of which product is used" *[Speroff, Darney p.105 IN A Clinical Guide for Contraception and 5 more references!]* Combined pills reduce ovarian production of androgens and increase Sex Hormone Binding Goblulin (SHBG) resulting in greater binding of free testosterone.

6. Sickle Cell disease is a genetic disorder in which an abnormal

hemoglobin molecule, hemoglobin S, causes red blood cells to become sickle-shaped. Crises may involve severe pain, rapidly developing anemia or sudden trapping of sickled cells within the spleen.

CONTRACEPTION: Depo-Provera decreases in vivo sickling. Both the frequency and intensity of sickle cell crises are diminished in Depo and combined oral contraceptive users *[deAbood, 1997]*. Progestin only pills have similar beneficial effects.

7. Pelvic inflammatory disease leads to subsequent infertility -

12% after one episode of PID, 23% after 2 episodes and 54% after 3 episodes *[Westrom,1980]*.

CONTRACEPTION: Pills decrease the risk of hospitalization for PID by 50-60%, but at least 12 months of use of combined pills are necessary, and the protection is limited to current users *[Eschenbach, 1977] [Panser, 1991]*. LNG IUDs, by thickening cervical mucus, having a 50% protective effect against PID *[Sivin,1991] [Toivanen, 1991]*. Thickening cervical mucus in woman using Depo-Provera may prevent ascent of pathogens to the upper genital track *[Lumbi Ganon,1996]*. Condoms are highy efective in protecting women against PID.

This presentation was developed for a course called the Technology of Fertility Control, at the Rollins School of Public Health at Emory University in Atlanta, for the third year medical school lecture on contraception at Emory University, and for grand rounds at the University of Michigan in Ann Arbor