

A Large Advantage An Advantage Neutral A Disadvantage A Large Disadvantage		Combined Hormonal Contraceptives (CHCs)			Progestin-Only Methods				Non-Hormonal			
Drug/Product		Combined Oral Contraceptive	Transdermal Patch	Vaginal Ring	Progestin-Only Pill (POP)	Depot Injection	Implant	IUD levonorgestrel	IUD copper			
Frequency		estrogen + progestin in numerous oral tablet combinations (see next page)	EVRA estradiol + norelgestromin patch	NUVARING, g Haloette estradiol + etonogestrel vaginal ring	MICRONOR, g norethindrone oral tablet SLYND drospirenone oral tablet	DEPO-PROVERA medroxyprogesterone intramuscular injection	NEXPLANON etonogestrel implantable rod	MIRENA 52mg KYLEENA 19.5mg intrauterine device	FLEXI-T LIBERTE MONA LISA intrauterine device			
Efficacy		When taken perfectly, each product can reach >99% effectiveness. Unfortunately, real-world efficacy is less (failure rates below are per year). Implant & IUD: first-line in teens due to efficacy. ^{ACOG}	Failure rate (typical use) ¹			7% (1 in 14) failure may be higher with progestin-only pills than CHCs	4% (1 in 20)	0.05% (1 in 2,000)	0.2% (1 in 500) expulsion is the main risk factor for failure	0.8% (1 in 125)		
Acne		See RxFiles Acne pg 33.	All estrogen/progestin combination products are beneficial. ^{12,30} Officially indicated: TRI-CYCLEN g, ALESSE, YASMIN, YAZ, YAZ-PLUS.			Can ↑ acne.				neutral.		
Weight Gain		?neutral. ^{2,3,14}			?neutral. ⁴	↑ 3.6kg at 2yrs. ⁴	↑ 1.7kg at 2yrs. ²⁰	?neutral. ⁴	neutral.			
VTE Risk		~2-3x ↑ VTE incidence; most pts low absolute risk (e.g. NNH=2,500/yr). ²⁸	Patch: estimated NNH=1,400/yr for VTE. ²⁸ Ring: estimated NNH=1,800/yr for VTE. ²⁸			?neutral. ^{28,35}				neutral.		
Bleeding	Cycle control	provides cycle control [desirable for some women].			Will not provide predictable cycle control [undesirable for some women]. Menstrual patterns are typically disrupted. This may mean unpredictable bleeding, heavier bleeding, spotting, or amenorrhea.							
	Withdrawal Bleeding	Can balance between withdrawal bleeding & spotting risk. Both will ↓ after first ~3 months. monthly cycling (↑ E dose = ↓ spotting)		Withdrawal bleeds +++	Spotting risk +	Bleeding or Spotting: average of 5 days per month at 1 year. ²¹	Bleeding or Spotting: average of 2 days per month at 1 year. ¹⁷	Bleeding or Spotting: average of 5 days per month at 1 year. ⁷	Bleeding or Spotting: average of 4 days per month at 1 year. ¹⁶	Bleeding is usually heavier and longer ± spotting. NSAIDs can help. ²⁵		
	Spotting	low-E oral options; 24/4 formulations ^{10,11} extended use e.g. long-cycle 3 or 6 months		++	++							
	Amenorrhea	continuous use		-	§	Amenorrhea: MICRONOR 5.4% at <1yr. ¹⁵	Amenorrhea: 55% at 1 yr; 68% at 2 yrs. ¹⁷	Amenorrhea: 22% at 2 yrs. ⁷	Amenorrhea is dose-dependent: MIRENA 37% at 3yr. ²⁶ KYLEENA 20% at 3yr. ²⁷	Amenorrhea: very unlikely. ²¹ Rule out pregnancy!		
Other AE		§ With continuous or extended use, spotting risk is high at first but low in the long term e.g. usually amenorrhea after < 1 yr of continuous use. ¹⁸			Serious AE very rare. Main reason for quitting is irregular bleeding.					Headache 17%, ↓ libido 6%. ¹⁷ May ↓ bone mineral density. ⁶	Implant site rx: 8.6%. ²⁰ 11% will quit due to irregular bleeding. ⁴⁵	Uterine perforation: NNH=1000 at 1 yr. ²⁴ ↑ quit rates with copper due to menstrual events or pain (28% IUD-copper vs 18% IUD-LNG, NNH=10 at 7 yrs). ²¹
Drug Interactions (DI)		DI: ↓ levels by CYP3A4 inducers, e.g. phenytoin, rifampin, rifabutin, CBZ, ritonavir. Antibiotics: case reports of failures, but limited data; back-up birth control may be advisable. Hep C antivirals: may ↑ ALT.			DI: ↓ levels by CYP3A4 inducers.		DI: are theoretical. May consider dosing q10 wk if on strong 3A4 inducer.		DI: are theoretical. Possibly avoid if on a strong 3A4 inducer.		DI: unlikely	DI: none
Return to fertility		Rapid. For most, ovulation resumes within <1 month after stopping; 99% of women will ovulate within 3-6 months. ⁹			Sometimes delayed up to 18 months.		Rapid; ovulation in typically < 1 month. ²²		Rapid. ²³		Rapid. ²³	
Contraindications & Cautions		CI: age ≥ 35yrs & smoking ≥ 15 cigarettes/day; CVD or high risk of CVD; uncontrolled HTN; current/past VTE; unexplained vaginal bleeding; migraine with aura; liver dysfx; diabetes with end-organ damage; breast cancer. ¹⁹ Caution: may ↓ milk supply if breastfeeding. ⁷¹			CI for progestins: current breast cancer, unexplained vaginal bleeding, current VTE, liver disease. CI for IUD: pelvic inflammatory disease, active STI (screen), ovarian cancer. Cautions for progestin pill and injection: uncontrolled HTN, CVD. Useful if CI to estrogen (e.g. VTE risk factors, postpartum, migraine with aura, breastfeeding).					CI: PID, unexplained vaginal bleeding, ovarian cancer.		
Additional Considerations & Comments		All CHCs: option for continuous dosing, especially if dysmenorrhea or symptoms (e.g. pelvic pain, headaches) during the hormone-free interval. All CHCs: may ↓ risk of ovarian, endometrial, & colorectal cancer. ³⁶ All CHCs: may ↑ ? risk of breast & cervical cancer. ³⁶ • Dosing can be adjusted to manage AEs (see next page, Tables 2 & 3.) • Useful in hirsutism; see RxFiles Hirsutism Chart page 62.			• No hormone-free interval with norethindrone; drospirenone contains 4 placebo pills. • Drospirenone can ↑ K ⁺ ; monitor if other hyperkalemia risk factors/medications. • Drospirenone long t½ (>30 hours); 24h pill forgiveness for missed or late doses. ⁸⁰	• 44% quit therapy after 1 yr often due to ↑ weight. ³⁸ • Amenorrhea likely, resulting in ↓ anemia & ↓ dysmenorrhea. • May last up to 14 weeks. • May ↓ ovarian, endometrial cancer. ³⁵ • ? may suppress menopausal hot flashes. • inconvenient to see HCP q3month for injection.	• Upfront cost: \$310 • Useful for those who desire a long-acting option but want to avoid an IUD. • Cases of infection, pulmonary migration, allergic reactions, & insertion-related neuropathies. ⁷⁰	• May ↓ cervical, endometrial cancer. ^{37,40} • ✓ heavy menstrual bleeding. • Upfront cost: MIRENA \$390 KYLEENA \$365 • KYLEENA shorter; useful if nulliparous.	• ✓ Emergency contraception (up to 7 days post-sex). ³⁷ • May ↓ endometrial cancer. ³⁷ Not CI if breast cancer hx. • Upfront cost: FLEXI-T \$133 LIBERTE \$95-106 MONA LISA \$97-110			
Cost (\$/30 days)		\$12-27	\$34	\$24 g	\$17 \$19	\$15	\$9	\$4-7	\$1-3			

Multiphasic pills may have lower hormone exposure per cycle, but lack evidence for less AE or advantage over monophasic.

ORAL CONTRACEPTIVES		COMPONENTS	HORMONAL ACTIVITY			COST
BRAND NAME; generic g		E=estrogen P=Progestin A=Androgen	E	P	A	\$/30d 
1 st Generation	BREVICON 0.5/35	Ethinyl estradiol 35 mcg Norethindrone 0.5 mg	+++	+	+	\$22
	SYNPHASIC (Biphasic)	Ethinyl estradiol 35 mcg Norethindrone 0.5 mg x12; 1mg x 9 tab	+++	++	++	\$20
	BREVICON 1/35; g=SELECT 1/35	Ethinyl estradiol 35 mcg Norethindrone 1mg	+++	+++	+++	\$22 g: \$18
	LOLO x ▼	Ethinyl estradiol 10 mcg Norethindrone 1mg	+	+++	+++	\$27 24 x EE/NE; 2 x EE only; 2 x placebo
2 nd Gen	ALESSE g=AVIANE, ALYSENA, AUDRINA	Ethinyl estradiol 20 mcg Levonorgestrel 0.1 mg	+	+	++	\$22 g: \$10
	TRIQUILAR (Triphasic)	Ethinyl estradiol 30 - 40 - 30 mcg Levonorgestrel 0.05 - 0.075 - 0.125 mg	+++	+	++	\$22 Sequence: 6-5-10 tabs
	MIN-OVRAL g=PORTIA, OVIMA	Ethinyl estradiol 30 mcg Levonorgestrel 0.15 mg	++	++	+++	\$26 g: \$13
3 rd Gen	MARVELON g=APRI, FREYA, MIRVALA	Ethinyl estradiol 30 mcg Desogestrel 0.15 mg	++	+++	+	\$25 g: \$14
	LINESSA (Triphasic)	Ethinyl estradiol 25 mcg Desogestrel: 0.1 Yellow - 0.125 Orange - 0.15 Red mg	++	+++	+	\$26 Sequence: 7-7-7 tabs
	TRI-CYCLEN (Triphasic) g=TRI-JORDYNA, TRI-CIRA TRI-CYCLEN-LO g=TRI-CIRA LO	Ethinyl estradiol 35mcg (LO: ethinyl estradiol 25mcg) Norgestimate: 0.18 White - 0.215 Light Blue - 0.25 Blue mg	+++ LO: ++	+	+	\$21 g: \$23 Sequence: 7-7-7 tabs
	YASMIN g=ZAMINE	Ethinyl estradiol 30mcg Drospirenone 3mg	++	++ (?)	—	\$19 g: \$12
4 th Gen	YAZ g=MYA YAZ PLUS x ▼	Ethinyl estradiol 20 mcg Drospirenone 3mg (PLUS-0.45mg levomefolate)	+	++ (?)	—	\$23 g: \$14 {PLUS \$19}
	NEXTSTELLIS x ⊗	Ethinyl estradiol 15mg (plant source) Drospirenone 3mg	+	++ (?)	—	\$25 24 x active; 4 x placebo
	Note about drospirenone: antiandrogenic; spironolactone derivative may ↑ K ⁺ esp with 3A4 ^o ; check K ⁺ x 1, e.g. @4weeks. • Advisory: may ↑ VTE risk slightly compared to other COCs, conflicting data Also potential DI with sotalol → QT prolongation.					

Practice Tools: [SOCG Contraception Decision Aid](#); [Sexual and Reproductive Health \(U of A\)](#); [CPhA Contraception Tool](#)

USA only

(not in Canada)

MIRCETTE, g: 20mcg EE + 0.15mg desogestrel x21 days, then placebo x 2 days, then 10mcg EE x 5 days.
NATAZIA: (four-phase) estradiol valerate 3-2-2-1 mg + dienogest 0-2-3-1 mg x26 days, then placebo x 2 days.
BEYAZ, g: EE + drospirenone + levomefolate x24 days, then placebo x 4 days.
LOESTRIN FE, g: 10mcg EE + 1mg norethindrone x24 days, then 10mcg EE x2 days, then 75mg ferrous fumarate x2 days.
LoSEASONIQUE, g: 20mcg EE + 0.1mg levonorgestrel x 84 days, then 10mcg EE x 7 days.
Opill norgestrel 0.075mg tablet at the same time every day (OTC).

Table 1. Combined Oral Contraceptives Extended/Continuous Dosing

Consecutive administration of active pills (e.g. 3-6-12 months) followed by 4-7 day hormone free interval (menses is no different than traditional dosing).
Advantages: ↓ adverse symptoms during hormone free interval (e.g. pelvic pain, headache / migraine, bloating, swelling, breast tenderness, worsening mood⁷⁶); ↓ anemia (e.g. fewer moderate / heavy withdrawal bleeds);⁶¹ ↓ endometriosis; ↓ PCOS; convenience (sports, vacation); ? ↑ adherence.
Disadvantages: no long-term safety data (>2 years & extra 9 weeks/year of exogenous hormone exposure); initially ↑ breakthrough bleeding, but ↓ with time (if BTB- start 4 day hormone free interval then resume continuous); possible delay in recognition of pregnancy; ↑ cost (but may be offset by ↓ hygiene product use).
 • ?shorter hormone free intervals may ↓ risk of ovulation.
SOGC: any CHC contraceptive with <50mcg of ethinyl estradiol may be used oral mono- or multi-phasic ↑ breakthrough bleeding, vaginal **NUVARING**, transdermal **EVRA**.
Commercially formulated extended use oral CHCs:
SEASONALE g=INDAYO \$21 x ▼ (91 day pack: 84 x Levo 0.15mg + EE 30mcg & 7 placebo \$28).
SEASONIQUE x ▼ (91 day: 84 x Levo 0.15mg + EE 30mcg & 7x EE 10ug \$28/yr).
Vaginal Admin of oral CHCs: ? ↓ AE by avoiding 1st pass metabolism, but unknown safety profile for this route and potential for high hormone absorption.

Table 2: Adverse Events & Their Management ^{1,9,14}

- **Breakthrough bleeding (BTB)** – most common in first 3 months; if persists beyond 3-6 months check for other causes e.g. chlamydia. Change to CHC with ↑ estrogen if early bleeding (days 1-9) or CHC with ↑ progestin if later bleeding (days 10-21); may also be related to poor adherence, smoking, or drug interactions.
- **Breast tenderness** – if persists beyond first 3 months rule out pathologic causes; change to CHC with less estrogen.
- **Weight gain** – may ↑ appetite in 1st month but overall little or no weight gain with low dose CHCs (or POP) & within normal limits for age-related gain; may be cyclical due to Na⁺ & H₂O retention. **YASMIN, YAZ:** possible less weight gain (?diuretic effect).
- **Nausea** – often subsides within 3 months; take at HS with food or change to lower estrogen content.
- **Headache** – if withdrawal headaches during the hormone-free interval, may switch to formulation with short hormone-free interval (e.g. **YAZ, LoLo**) or switch to extended/continuous dosing (see above). For some, menstrual migraines may improve with continuous CHC, but for others migraines are exacerbated by CHC.
- **Acne** – sometimes worsens initially but usually improves in the long-term; change to ↓ androgenic CHC (desogestrel, norgestimate, and drospirenone) or use topical therapy.
- **Mood Changes** – reported; no different than placebo in trials. Monitor after 1-3 months.
- **Chloasma** – irreversible and idiosyncratic; exacerbated by sunlight so use sunscreen & reduce exposure; ↓ estrogen dose.

Table 3. Product Selection guided by Signs & Symptoms of...

Estrogen Deficiency	Progestin Deficiency	Estrogen Excess +/- Progestin Deficiency	Excess Estrogen	Excess Progestin	Excess Androgen	ACNE See Rxfiles Acne Chart pg 33-34.
- early bleeding & spotting days 1-9 - pelvic relaxation sx - atrophic vaginitis - vasomotor symptoms - continuous bleeding or spotting ↓ in flow - absence of withdrawal bleeding ↓ nervousness	- late bleeding and spotting days 10-21 - delayed withdrawal bleeding	- hypermenorrhea, menorrhagia - nausea, vomiting - headache (cyclic) - visual changes (cyclic) - weight gain (cyclic) - PMS bloating, edema - dizziness irritability - leg cramps - dysmenorrhea	- hypermenorrhea, clotting, menorrhagia ↑ breast size or cystic change - cervical ectropathy ↑ uterine or fibroid growth - vascular headaches - dysmenorrhea • mucorrhea - hypertension • chloasma - thromboembolism • UTI	- depression - breast tenderness - libido decrease - weight gain (non-cyclic) ↑ appetite - sx: hypoglycemia, dizzy - yeast infection • cervicitis - leg vein dilation • fatigue	- oily skin / scalp ↑ libido - rash, pruritus - cholestatic jaundice - hirsutism - edema - acne	• All CHCs can be beneficial in acne - due to estrogen binding to sex hormone binding globulin (SHBG) • Official Acne Indication: ALESSE, TRI-CYCLEN g, YASMIN, YAZ & DIANE 35/CYESTRA-35 x ▼ \$53, \$32 g DIANE 35: EE 35mcg + cyproterone 2mg; Health Canada April 2003 warning: not for contraception only; stop within 4months of acne resolution; however indicated for contraception in some other countries.

Compassionate Contraceptive Assistance Program: compassion.sogc.org. D/C: ORTH-NOVUM 1/50, ORTHO 0.5/35 & 1/35, TRI-PHASE, OVRAL, ORTHO-CEPT, LYBREL, MINISTRIN 1/20, LOESTRIN 1.5/30, DEMULEN 30, ESME, LUTERA, RECLIPSEN, CYCLEN, TRI-CYCLEN & LO, ZARAH; IUD JAYDESS, NOVA-T; NORPLANT.
Note: 21 & 28 tablet packs available for most oral CHCs (21day cost ≈ 28day cost; 28day packs have 7 inert tablets).

Product		Initiation & Dosing	Troubleshooting				Cost /30d												
Combined Hormonal Contraceptives (CHCs)	Combined Oral Contraceptives	1 tab daily. See page 168 for extended/continuous use.	Table 4. Missed Dose Management for CHCs in Canada. SOGC 2015-2017				\$13-27												
	Transdermal Patch EVRA ethinyl estradiol 35mcg + norelgestromin 200mcg released daily X ▼ USA: XULANE, ZAFEMY ethinyl estradiol 35mcg + norelgestromin <u>150</u> mcg released daily USA: TWIRLA LNG+EE	Standard: 1 patch applied weekly x 3 weeks, then 1 week off. Extended use (off-label): 1 patch weekly with 1 week off every 3, 6, or 12 months Continuous (off-label): 1 patch weekly - Use back-up contraception for 7 days if not started on the same day as menses. - May apply to the buttock, abdomen, upper outer arm, or upper torso. - Do not apply to breast (↑ tenderness). - Canada: off-label age <18yrs.	<i>Note: guideline & monograph recommendations not identical.</i>		Management Plan	Unprotected sex in last 5 days?	Back-up contraception?												
	Vaginal Ring NUVARING ✱, g=HALOTTE ethinyl estradiol 15mcg + etonogestrel 120mcg released daily USA: ANNOVERA ethinyl estradiol + segestosterone reusable ring (same ring used for up to 1 year)	Standard: 1 ring inserted vaginally x 3 weeks, then removed for 1 week Extended use (off-label): 1 ring replaced every 3-4 weeks, with one ring-free week every 3, 6, or 12 months Continuous (off-label): 1 ring replaced every 3-4 weeks Use back-up contraception for 7 days if not started on the same day as menses.	Missed days during cycle <i>e.g. forgotten pill(s), patch fell off ≥ 24 hours, ring fell out ≥ 3 hours.</i> <table><tr><td>Week 1</td></tr><tr><td>Week 2</td></tr><tr><td>Week 3</td></tr></table> Missed days after cycle <i>e.g. new pack of pills not started, patch left on too long, ring left in too long.</i>	Week 1	Week 2	Week 3	Pill/ring: Take 1 pill / insert 1 ring ASAP, & continue as usual to end of cycle. Patches: Apply <u>new</u> patch & restart a 3-patch cycle. Take 1 pill / apply 1 <u>new</u> patch / insert 1 ring ASAP, & continue as usual to end of cycle. Start new cycle of CHC without hormone-free interval. (Discard placebo pills, if any). Pill: if new pill cycle delayed, resume ASAP. Patch: if forgotten to remove at the end of the cycle, remove as soon as remembered and start new cycle on usual 'patch change day'. Ring >28 days: insert a new ring; skip hormone-free interval; keep in until next scheduled ring removal day.	Consider EC. Consider EC if 3+ days missed. The more days missed, the stronger the EC recommendation. Consider EC if new pill cycle delayed, patch not removed until <u>after</u> hormone-free interval, or ring left in > 35 days.	Yes: backup x 7 days. Yes: backup x 7 days if 3+ days missed. Yes: backup x 7 days if EC is indicated.										
	Week 1																		
	Week 2																		
Week 3																			
For all: ovulation rarely occurs after 7 days of continuous CHC use. Also for all: hormone-free intervals should never exceed 7 days. Patch: detachment for <24 hours OK – just re-apply <u>same</u> patch. Patch effective up to 9 days (can be 2 days late in changing). Ring: Removal for <3 hours OK – just re-insert <u>same</u> ring. Ring effective up to 28 days (can be 7 days late in changing). Missed doses in extended/continuous regimens: up to 7 straight days can be missed, as long as 21 consecutive days have been taken. If persistent unscheduled bleeding with COCs (e.g. after > 3 months of use): may be irregular pill taking , DIs, malabsorption, pregnancy, chlamydia, uterine/cervical pathology. ³⁶ Otherwise, may try changing to different COC formulation (see page 168), using an alternate method of birth control, or adding 1-2 weeks of exogenous estrogen (e.g. PREMARIN 0.625mg daily) or an NSAID. ⁴³						\$24													
Progestin-Only Pill (POP)		1 tab daily; No hormone-free interval with norethindrone; 4 days of placebo with drospirenone. Use back-up contraception for 2 days if not started within 5 days of menses.					\$17												
MICRONOR g=MOVISSE, JENCYCLA norethindrone 0.35mg		SYLND ✕ drospirenone 4mg x 24d, then 4 placebo pills					\$19												
Injection DEPO-PROVERA medroxyprogesterone acetate 150mg vial for inj. & pre-filled syringe USA: DEPO-SUBQ PROVERA 104 subcut inj.		150mg IM (deltoid or gluteal) q12 weeks. No hormone-free interval. - Use back-up contraception for 7 days, if not started within 5 days of menses. Consider emergency contraception alongside DMPA initiation if unprotected sex in last 5 days. - Injection effective for 13 weeks, and likely up to 14 weeks.³⁵ Consider dosing every 10 weeks if on strong 3A4 inducer. Educate patient regarding osteoporosis risk factors: e.g. adequate weight-bearing exercise and calcium/Vit D intake, smoking cessation, etc.	Missed-dose management for norethindrone: if >3 hours late: less forgiving if missed dose → if unprotected sex in last 5 days, take EC; use back-up contraception for 2 days. Missed-dose management for drospirenone: if missed 1 pill, take ASAP (may take 2 pills in 1 day). Use back-up contraception x7days / EC only if missing ≥2 active pills. If irregular bleeding, may try a similar approach as DMPA (below).				\$15												
Implant NEXPLANON etonogestrel 68mg subdermal rod matchstick-size		Removable rod system implanted every 3 years (may be effective up to 4 years). - Use back-up contraception for 7 days, if not started within 5 days of menses. - Canada: off-label age <18yrs. USA: etonogestrel IMPLANON ~70mcg/day initial, drops to 25mcg/day by 3yrs.	Missed-dose management: if ≥14 weeks since last injection: - test for pregnancy [only give DMPA if negative for pregnancy] - consider emergency contraception if unprotected sex in last 5 days - use back-up contraception for 7 days If irregular bleeding, may try adding one of the following:³⁵ - NSAID x 5-7 days - COC x 1-3 months - exogenous estrogen (e.g. PREMARIN 0.625mg daily) x 28 days				\$9												
IUD-levonorgestrel MIRENA 52mg IUD KYLEENA 19.5mg IUD USA: SKYLA x3yr, LILETTA x8yr		MIRENA: insert q 8yrs. ^{HC, FDA} Initially releases 20mcg/day LNG; drops to 10mcg/day by 5yrs. KYLEENA: insert q 5yrs. Initially releases 17.5mcg/day LNG; drops to 9mcg/day by 5yrs. Use back-up contraception x 7 days if not started within 7 days of menses.	If irregular bleeding or severe cramping with any IUD:³⁷ - rule out infection, expulsion, uterine/cervical pathology, malposition, pregnancy - may try adding short-term NSAID, or ? COC x 1-3 months (expert opinion) - symptoms usually improve over time				\$4-7												
IUD-copper FLEXI-T ✕ ▼ 300, 300+, 380+ LIBERTE UT380 short, UT380 ✕ ▼ TT380 short, TT380 ✕ ▼ MONA LISA ✕ ▼ N, 5-mini, 5, 10		All IUDs: patient handout: tinyurl.com/UBC-IUD - Naproxen 500mg 1 hour prior to insertion can ↓ insertion pain.⁴¹ Alternate: local lidocaine.⁷⁴ - May insert immediately postpartum, but ↑ expulsion risk: 10% if <10min post-partum; 30% if <4 weeks, and 2% if >4 weeks.⁴⁶ May insert immediately after uterine aspiration.⁴⁴ - A larger copper surface area (e.g. 380 mm²) may slightly ↑ efficacy.^{37,47} LIBERTE UT has copper on body; LIBERTE TT has copper on body & arms (?↑ efficacy).⁴⁸ - Efficacy likely maintained even if left <i>in situ</i> 2yrs longer than recommended.³⁷ - Back-up contraception not necessary, regardless of when therapy initiated.³⁷	Table 5. Size, Strength, Duration, and Cost Comparison of Copper IUDs. <table><tr><th>size →</th><th>Shorter e.g. if nulliparous</th><th>Longer e.g. if parous</th></tr><tr><td>Cu Surface Area</td><td>MONA LISA 5-mini (5yrs, \$104) LIBERTE TT380 short (5yrs, \$128) LIBERTE UT380 short (5yrs, \$117)</td><td>MONA LISA 5 (5yrs, \$104) & 10 (10yrs, \$118) LIBERTE UT380 (5yrs, \$117) & TT380 (10yrs, \$128) FLEXI-T 380+ (5yrs, \$148)</td></tr><tr><td>380 mm² copper</td><td>MONA LISA N (3yrs, \$104) FLEXI-T 300 (5yrs, \$148)</td><td></td></tr><tr><td>300 mm² copper</td><td></td><td></td></tr></table>				size →	Shorter e.g. if nulliparous	Longer e.g. if parous	Cu Surface Area	MONA LISA 5-mini (5yrs, \$104) LIBERTE TT380 short (5yrs, \$128) LIBERTE UT380 short (5yrs, \$117)	MONA LISA 5 (5yrs, \$104) & 10 (10yrs , \$118) LIBERTE UT380 (5yrs, \$117) & TT380 (10yrs , \$128) FLEXI-T 380+ (5yrs, \$148)	380 mm² copper	MONA LISA N (3yrs, \$104) FLEXI-T 300 (5yrs, \$148)		300 mm² copper			\$365-390/ 5-8yr ▼once q2yr
size →	Shorter e.g. if nulliparous	Longer e.g. if parous																	
Cu Surface Area	MONA LISA 5-mini (5yrs, \$104) LIBERTE TT380 short (5yrs, \$128) LIBERTE UT380 short (5yrs, \$117)	MONA LISA 5 (5yrs, \$104) & 10 (10yrs , \$118) LIBERTE UT380 (5yrs, \$117) & TT380 (10yrs , \$128) FLEXI-T 380+ (5yrs, \$148)																	
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300 mm² copper																			
Cost listed is per device (i.e. copper IUDs are very cost effective over time). NIHB: ▼ 1 device q1yr.																			

Table 6: Benefits of CHCs 51,53,54,62, SOGC 2015
♦ Simple & highly effective (99.7% if <i>perfect use</i>; >92% if <i>typical use</i>). (inhibit ovulation, endometrial effects, cervical mucus effects, tubal peristalsis.) ♦ Reduces need for sterilization & abortion. ♦ Significantly improves menstrual symptoms & regularity: ♦ ↓ dysmenorrhea & mittelschmerz, abnormal uterine bleeding; ↓ menstrual blood loss (up to 50%), risk of anemia & PMS, ↓ premenstrual dysphoric disorder; ↑ cycle control. ♦ Alleviates menorrhagia/hot flashes in perimenopausal. ♦ Decreases relative incidence of disease: ♦ ↓ bacterial pelvic inflammatory disease by 60% ♦ ↓ endometriosis;⁵⁹ ↓ salpingitis ♦ ↓ endometrial cancer by >50% from 2.3→1.3 per 100 ♀ after 10yrs * ♦ ↓ ovarian cancer by 40%; NNT=185≤5yrs* (benefit also detected in newer oral CHC within 1 year, progesterone-only pill= limited data).⁵³ ♦ ↓ ovarian cysts by ?>60% ♦ ↓ colorectal cancer ♦ ↓ fibrocystic, benign breast disease by ?50-75% ♦ ↓ osteoporosis (↑ bone density) ♦ ↓ ectopic pregnancy ♦ ↓ acne & hirsutism *benefit greatest with long-term use (>5yr) & persists up to 15 yrs after D/C.
Table 7: Risks of CHCs 51,54,62,SOGC 2015
♦ Venous Thromboembolism (VTE)⁵⁶ - absolute risks: Theory: estrogen ↓ Protein C activation so ↑ thrombus risk.⁶³⁻⁶⁵ Non-CHC users at baseline: <4-5 per 10,000/year; ↑ with age e.g.>37 yrs. CHC Users: 8-9 per 10,000/yr (up to 14/10,000); highest in 1st year. Pregnancy: 29 per 10,000/yr (Immediate post-partum: 300-400 per 10,000/yr).⁶³⁻⁶⁵ ↑ Risk: age ≥ 40yr, obese, smoking, inherited thrombophilia, VTE hx -? slight ↑ risk with drospirenone, but some data suggests not. See RxFiles YAZ/YAZMIN VTE Q&A. May ↓ Risk: ↓ estrogen dose & levonorgestrel/norethindrone/norgestimate. ♦ Arterial Thrombosis (MI & stroke): absolute risk is low; no significant ↑ risk over baseline in young non-smoking ♀. ↑ Risk: estrogen ≥50mcg/day, age>35, smoking, HTN & CVD (↑ ~2-3x); migraine with aura⁷⁸; type of progestin/CHC used e.g. oral, patch unlikely to alter risk.⁵² ♦ Breast Cancer: controversial, ↑ ? 1.3x; persists for <10yrs after D/C (also may relate to nulliparity/delay in childbearing). ♦ Cervical Cancer: ↑ 1.5x with long-term use (>5yr);⁵⁷ but may relate to early sexual activity & multiple partners (HPV risk). 10yrs' use starting at age 20 may ↑ cumulative cancer incidence at age 50 from 3.8 to 4.5/1000 ♀. ♦ BMD: ≤ 20mcg ethinyl estradiol associated with ↓ BMD in adolescents. ♦ Does not protect against sexually transmitted infections. ♦ May ↑ and/or precipitate: HTN, HF, diabetes, Raynauds, gallbladder/liver/pancreatitis dx, severe SLE, migraine HA, depression,⁶⁰ GERD, vaginal yeast infections, ↑ triglycerides. ♦ ? may impact (↑ or ↓) sexual function. ♦ Failure esp. if missed doses with ≤ 20mcg estrogen formulations. Drug causes of oral CHC failure: Alcohol excessive, chronic; ABX: rifamycin, (ABX^{non-rifamycin} don't ↓ efficacy of COC,^{54,55} unless GI upset ↓ absorption (see Table 11) but conflicting data); anticonvulsants: see Seizures pg 163; antivirals: ritonavir; boceprevir, efavirenz, nelfinavir, aprepitant; bosentan; elagolix; lesinurad; colesevelam; modafinil; orkambi; sarilumab; red clover & St. John's Wort. Ulipristal: wait 5 days before starting COC, progestins may ↓ ulipristal effectiveness. GLP-1 agonists e.g. liraglutide, semaglutide, dulaglutide: space administration. Management: Acute tx (e.g. antibiotics): use back-up method during & for 7 days after. Chronic tx: consider higher estrogen containing product. D: estrogens → moderate CYP 1A2 ♂; progestins → P-gp ♂

Table 8: Contraindications to CHCs ^{54, SOGC 2015}

- ♦ Active **thromboembolic** disease; current or past VTE.
- ♦ Heart disease: ischemic or complicated valvular.
- ♦ **Uncontrolled HTN** (systolic ≥ 160mmHg; diastolic ≥ 100mmHg).
- ♦ History of cerebrovascular accident.
- ♦ Diabetes with retinopathy/nephropathy/neuropathy.
- ♦ **Undiagnosed uterine bleeding**.
- ♦ **Hepatitis, cirrhosis, or liver tumor**: avoid CHCs if active disease; may use if liver enzymes returned to normal or in mild cirrhosis.
- ♦ Known/suspected **breast CA** ♦ HA with focal neurological sx.
- ♦ **Pregnancy** (no benefit; fetal risk of inadvertent exposure appears low).
- ♦ **Post-partum**: **avoid** in ≤21 days; & if ↑ VTE risk, **avoid ≤42-84 days**; may avoid < 4-6 wks postpartum if **breastfeeding**.
- ♦ **Smoker over age 35** and ≥15 cigarettes/day.
- ♦ **Migraine** with focal neurologic sx (i.e. aura) or >35yr (↑ CVA)

Table 9: Precautions of CHCs ^{SOGC 2015} {see **D**: left column}

- ♦ **Hypertension**: may use po CHCs e.g. EE ≤ 35mcg if HTN controlled
- ♦ **Diabetes**: low dose CHCs unlikely to affect glucose control but estrogen may complicate vascular disease.
- ♦ **Epilepsy**: some anticonvulsants ↓ CHC efficacy; see [RxFiles Seizure Chart](#) page 163, for preferred contraceptives.
- ♦ **Symptomatic Gallbladder disease**: may be exacerbated
- ♦ **IBD**: diarrhea may ↓ po CHC absorption requiring backup (if > 24hr, follow missed pill instructions); ↑ VTE risk if mod-severe.
- ♦ **Systemic lupus erythematosus (SLE)**: inactive/stable SLE ok, but unknown for severe active or if antiphospholipid antibodies/hypercoagulable states.
- ♦ **Smoker, older age** e.g. 35-55yr, **obese** BMI>30,⁵⁰ or **hx of embolic events**: higher risk of VTE with CHCs. Consider progesterone-only e.g. IUD, implant or non-hormonal instead.
- ♦ **Bariatric Surgery**: may ↓ po CHC absorption, non-oral preferred
- ♦ **Obesity/BMI > 30**: unlikely, but possible, ↑ in failure rate.
- ♦ **Porphyria**.

Table 10: ACHES - CHCs Early Danger Signs ⁵⁸

SIGN	POTENTIAL PROBLEM
Abdominal pain (severe)	gallbladder disease, pancreatitis, hepatic adenoma, thrombosis
Chest pain (severe), SOB	pulmonary embolus or acute MI
Headaches (severe)	stroke, hypertension, migraine
Eye problems -blurred vision, flashing lights, blindness	stroke, hypertension, vascular insufficiency
Severe leg pain (calf or thigh)	deep vein thrombosis (DVT)

Contraceptive Health Counselling: ^{ACOG'17} 1st visit **13-15yrs**; develop rapport & personalize discussion for shared decision making; contraception, STIs, prevention strategies (e.g. HPV vaccine).

CHC=combined hormonal contraceptive i.e. combined hormonal oral, patch, or ring
COC=combined oral contraceptive POP=progesterin-only pill

Table 11: Sick days (with vomiting +/-or diarrhea)
♦ No specific data pertaining to effects of severe vomiting or diarrhea; consider similar management as for missed doses.^{CDC} 13 ♦ Oral CHC - if vomiting or diarrhea occurs within 24 hours of taking pill, or extends up to 24-48 hours, continue taking pills as usual; if illness continues > 48 hours, see missed pill section for management; consider backup method or emergency contraception especially if within the first 7 days of cycle. ♦ Progestin-only pill – vomiting or diarrhea within 3 hours of taking pill, take another pill if able to tolerate & continue as usual; consider backup method until 2 days after symptoms resolve &/or until pills have been taken consistently for 2 days.
Table 12. Emergency Contraception (EC)
Oral Options: Taken within 3-5 days of unprotected/inadequately protected sex can delay/inhibit ovulation & therefore prevent fertilization, NOT implantation (less effective after ovulation); will not terminate an existing pregnancy; malformations not reported. Decreases pregnancy rate from an expected ~8% to ~1%.⁶⁸ D: 3A4 inducers. AE: HA, irregular bleeding, N/V (GRAVOL 30 min prior). ♦ Ulipristal- repeat dose if vomiting ≤ 3hr after ingestion. ♦ Levonorgestrel & Yuzpe- repeat dose if vomiting ≤ 2hr after ingestion. M: Schedule follow-up same day, next day or next period with a provider after EC use for ongoing contraception or STI testing.^{AAP} Levonorgestrel PLAN B \$29; g \$20 OTC Drug of choice for most. ♦ Admin: 1.5mg x 1 dose; OR 0.75mg STAT then 0.75mg in 12hr. ♦ pregnancy rate= 2.2% < 72hr; 2.6% < 120hr.⁶⁶ (? ↓ efficacy BMI > 26) Yuzpe Method 1 dose=ethinyl estradiol 100mcg/levonorgestrel 0.5mg. ^{\$15-30} ♦ Admin: 1 dose stat (e.g. 1 dose = 5 ALESSE pills), repeat in 12hr. ♦ pregnancy rate = 2.5-2.9% < 72hr.⁴⁹ Ulipristal ELLA x ♂ \$42 ♦ Admin: 30mg x 1 dose. ♦ pregnancy rate = 1.4% < 72hr; 1.6% < 120hr.⁶⁶ (? ↓ efficacy BMI > 30) ♦ D: delay restarting COC for 5 days. IUD Option: inhibits sperm function and prevents endometrial receptivity. Copper IUD: see RxFiles Birth Control Chart page 167. ♦ Admin: insert within 5-7 days if pregnancy is ruled out. ♦ 1st line if BMI ≥30 as efficacy is not affected. ♦ pregnancy rate <0.1%, even after ovulation.⁶⁷ Levonorgestrel 52mg IUD: off-label; 1 large RCT showed 99.7% efficacy.⁷²
Table 13. Medical Abortion Patient Handout ; other: surgical abortion
May offer to terminate pregnancy ≤10wks (CDN 63d, FDA 70d; >93% efficacy). Mifepristone & Misoprostol MIFEGYMISO ≥15yrs \$300. Free coverage Sask. ♦ Admin: 200mg (1 tab) po mifepristone, then 800mcg (4 tabs) buccal misoprostol 24-48hr later (hold pills in cheeks to dissolve for 30 mins, remaining pieces can be swallowed with water). CI: ectopic pregnancy; chronic adrenal failure; porphyria; severe asthma. Caution: Hgb <95; IUD (must remove); long-term corticosteroids. AE: pelvic cramping (tx acetaminophen, NSAIDs, heat pad), bleeding, HA, N/V/D, infection 1-2%, fever/chills, dizziness. Rare skin rxn. M: baseline serum beta-hCG (≤72hr prior to taking mifepristone), repeat beta-hCG 48hr after mifepristone (>50% drop, abortion complete) or 7d after mifepristone (>80% drop, abortion complete). Follow up with prescriber virtually/in-person within 7-14 days. ♦ Immediate return to fertility. CHCs, POPs, implant can be started same day as mifepristone. Wait until expulsion before starting IUD.

Birth Control

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📖 Birth Control Online Extras:

Table 14: Preventing Gaps when Switching Contraceptives. ⁶⁹		
Switching from →	Switching to	Comments
Combined OC, progestin only pill	Combined OC, progestin only pill	• switch directly from one pill to another; do not miss a day
Combined OC	Patch or Ring	• start patch day before last pill; start ring day after last pill • Do not need to complete pill cycle before switch
Patch or Ring	Combined OC	• start pill day before scheduled to remove patch/ring; i.e. no more than 8 days after last patch (effective up to 9 days) or 34 days after ring (effective up to 35days) • Do not need to complete full cycle for patch/ring before pill starts
Patch	Ring	• insert ring & remove patch on same day
Ring	Patch	• Apply patch 2 days before ring removal
Combined OC, patch or ring	Progestin IUD or injection	• Continue pill, patch or ring x 7days (or use barrier)
Copper IUD	Progestin IUD (i.e Mirena)	• Use barrier x 7 days ; return to fertility may be immediate
	Progestin injection (i.e. Depo-Provera)	• Give injection 7 days before IUD removal; if done on same day, use barrier x 7days
	Combined OC, patch, or ring	• Start new method 7 days before removal of IUD or use barrier x 7days
Progestin IUD (i.e. Mirena) or injection (i.e. Depo-Provera)	Combined OC, patch, or ring	• Start new method 7 days before removal of IUD or next injection due (i.e. start new method about 12 weeks after last injection)
Combined OC, patch or ring	Copper IUD	• Can insert copper IUD up to five days after stopping pill, patch or ring
Progestin IUD (i.e. Mirena)	Copper IUD	• Can insert copper IUD right after removing progestin IUD
Progestin injection (i.e. Depo-Provera)	Copper IUD	• Insert copper IUD up to 12 weeks after the last shot

Consider: Abstain from sexual intercourse or use a barrier method (condoms +/- spermicide) if no overlap in methods for a minimum of 7days for most switches (see Table 14 for exact number of days in bold print)

Note: ACOG 2021 recommends all sexually active individuals be educated on the potential benefits of Pre-Exposure Prophylaxis for HIV.

Link to CDC – Medical Eligibility for Contraceptive Use – detailed chart: https://www.cdc.gov/reproductivehealth/contraception/pdf/summary-chart-us-medical-eligibility-criteria_508tagged.pdf

Contraceptive Choices for Post-Partum and Breastfeeding: (Woodhams, E in Contraception 2012)

- Generally advisable to avoid sexual activity for 6 weeks post-partum (although many women resume sexual activity earlier)
- Avoid estrogen containing formulations (pills, patch, vaginal ring) for first 3-6 weeks regardless of whether breastfeeding (due to increased VTE risk); if breastfeeding, wait minimum 30days until lactation well established; if other risk factors for VTE, wait 6 weeks
- Progestin only methods (injection, implant, IUD, pill) can all be started immediately post-partum (recent data shows unlikely to interfere with breastfeeding)
- IUD can be inserted immediately post-placental delivery although expulsion rate can be as high as 20%; if not placed within 10min of placental delivery, wait 6wks
- Diaphragms and cervical caps will need re-fitting after delivery; all other barrier methods can be used immediately post-partum

After Emergency Contraception ^{SOGC¹⁵}: Health care providers should **discuss a plan for ongoing contraception** with women who use pills for emergency contraception (EC) & should provide appropriate methods if desired. Hormonal contraception should be started within 24hrs of taking **levonorgestrel** for EC, & back-up contraception or abstinence should be used for the first 7 days after starting hormonal contraception. Women who use **ulipristal-EC** should start hormonal contraception 5 days after using ulipristal-EC. Ulipristal-EC users starting hormonal contraception must use back-up contraception or abstinence for the first 5 days after taking ulipristal-EC & then for the first 14 days after starting hormonal contraception.

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FDA Apr/12 has completed its review of recent observational (epidemiologic) studies regarding the risk of blood clots in women taking drospirenone-containing birth control pills. Based on this review, FDA has concluded that **drospirenone**-containing birth control pills may be associated with a higher risk for blood clots than other progestin-containing pills. . Report that some epidemiologic studies reported as high as a three-fold increase in the risk of blood clots for drospirenone-containing products when compared to products containing levonorgestrel or some other progestins, whereas other epidemiological studies found no additional risk of blood clots with drospirenone-containing products.

FDA Nov/16 **Essure** labeling now includes the addition of a boxed warning and a Patient Decision Checklist, both intended to support patient counseling and understanding of benefits and risks associated with Essure, as well as what to expect during and after the Essure procedure. The boxed warning includes safety statements to clearly communicate significant side effects or adverse outcomes associated with this device and information about the potential need for removal.

FDA May/18: Allergan recently identified, through a physician report, that four placebo capsules were placed out of order in a sample pack of **TAYTULLA** and the first four days of therapy had four non-hormonal placebo capsules instead of active capsules.

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Health Canada June/10 **MIRENA** (Levonorgestrel-Releasing Intrauterine System) - Potential Risk of Uterine Perforation - Bayer Inc. Bayer Inc., in collaboration with Health Canada, would like to remind you of important safety information regarding reports of uterine perforation in women treated with MIRENA.

Health Canada Dec/11 has completed a safety review of drospirenone-containing oral contraceptives (marketed under the brand names Yasmin and Yaz) with respect to the risk of blood clots (venous thromboembolism, or VTE). The review determined that **drospirenone-containing birth control pills** may be associated with a risk of blood clots that is **1.5 to 3 times higher than other birth control pills**.

Health Canada Sep/13 **Freya-28**, an oral contraceptive (birth control product), is being voluntarily recalled from the Canadian market by Mylan Pharmaceuticals after a pharmacy reported that a placebo pill was found in place of an active pill in one package.

Health Canada Sep/13 **Esme-28** (DIN 02388146), an oral contraceptive (birth control product), is being voluntarily recalled from the Canadian market by Mylan Pharmaceuticals.

Health Canada May/16 **ESSURE** (permanent birth control system) – Risk of Serious Complications - Bayer Inc. These include changes in menstrual bleeding, unintended pregnancy, chronic pain, perforation and migration of device, allergy and sensitivity or immune-type reactions. Some complications may be considered serious.

Health Canada Nov/17 **MIFEGYMISO (mifepristone and misoprostol tablets)** - **Updates** to Product Monograph and Risk Management Plan. <http://healthycanadians.gc.ca/recall-alert-rappel-avis/hc-sc/2017/65030a-eng.php>

Health Canada Dec/17 is advising consumers and health care professionals that complaints have been received for packages of **Alesse 21 (21 active pills) and Alesse 28** (21 active pills, 7 that contain no hormones). The blister packages for both contained an active (pink) pill that was roughly half the proper size.

Health Canada Dec/17 and Pfizer Canada Inc. have received reports for packages of **ALESSE 21 and ALESSE 28** where the blister packages contained a single active (pink) tablet that was **broken**. This could reduce the dose of hormones and potentially result in an unintended pregnancy due to insufficient action of the contraceptive

hormones levonorgestrel and ethinyl estradiol.

Health Canada Feb/18: **Alysena 28** birth control pill: One lot recalled due to chipped pills, which may reduce effectiveness in preventing pregnancy.

Health Canada is informing Canadians that all lots of both Alysena 21 and Alysena 28 may have **chipped pills**.

Health Canada Jun/18: Pfizer Canada Inc. has notified Health Canada that it has received complaints of **broken or chipped pills involving Demulen 30**, a prescription birth control pill.

Health Canada Apr/19 is informing Canadians that the prescribing and patient information for Mifegymiso has been updated to reflect that an ultrasound is no longer required before the drug is prescribed.

Health Canada Feb 16/24 approved the extended time period of using **MIRENA** for up to 8 years, (rather than 5 years), for contraception control.

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Am J Obstet Gynecol 2017 Jan 29. This large study adds to a growing body of evidence demonstrating the effectiveness of the etonogestrel implant for 5 years and the 52-mg LNG-IUD for up to 7 years. Women of any age can use the implant for up to 5 years (NEJM JW Womens Health Nov 2016 and Hum Reprod 2016; 31:2491). Among the 3 available doses of the LNG-IUD, extended use should only be considered for the 52-mg dose **Mirena**. Younger LNG-IUD users have slightly higher risk for pregnancy; accordingly, to balance risk and benefit for my patients who would like to consider extended use of the 52-mg LNG-IUD, I offer those who are younger than 35 up to 6 years of use, and those who are 35 or older up to 7 years of use. For women who prefer to exchange their 52-mg LNG-IUD with a new device at 5 years, I accede to their preference.

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