Pain with Office Family Planning Procedures: Tips, Tricks and Evidence

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Disclosures

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Overview

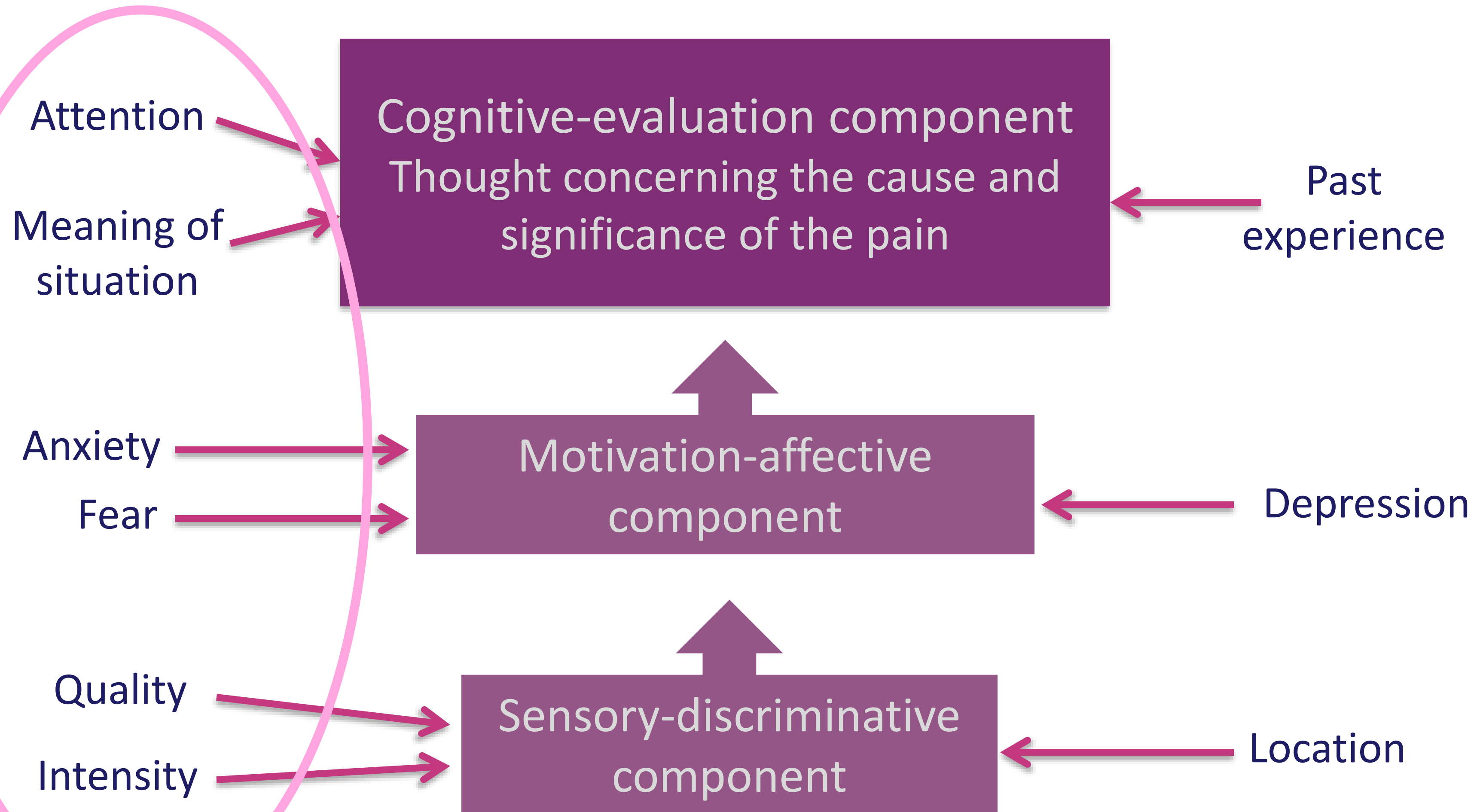
- **Pain and comfort in general**
- **Trauma-informed care and pelvic exams**
- **Local anesthetic**
- **Procedures**
  - IUD insertion *(Now there are 5!)*
  - IUD removal, colposcopy and biopsy, implant insertion and removal
- **Not today:** LEEP, cryotherapy, non-F.Pact procedures

LEEP = Loop Electrosurgical Excision Procedure

Objectives

- To increase your confidence in your ability to keep patients comfortable during exams and procedures that you already do
- To expand your repertoire of office gyn procedures, particularly to placing IUDs.

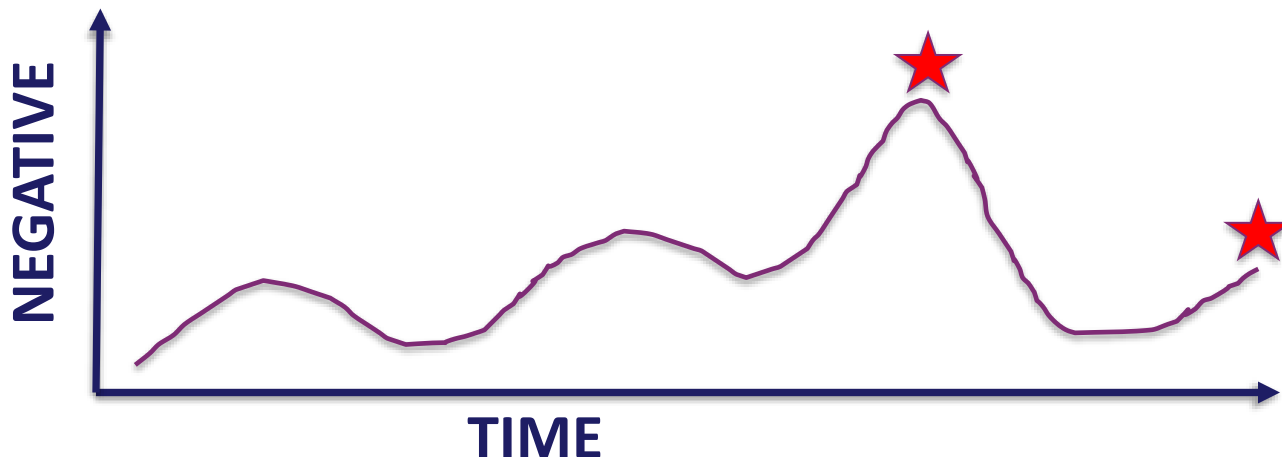
Components of Pain



AMA Pathophysiology of Pain 2005, Melzack Acta Anesth Scand 1999

The Peak-End Rule

- People judge an experience largely based on how they felt at its peak (most intense point) and its end, not on the sum or average
- "Duration neglect" - judgment of unpleasantness of painful experiences depends little on the duration



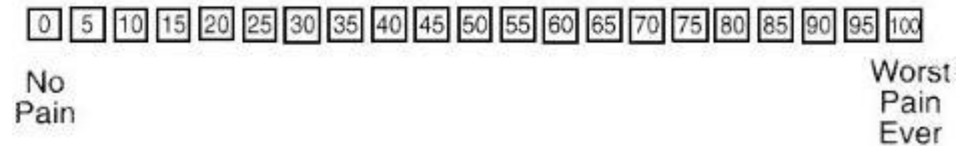
Fredrickson and Kahneman 1993 and many after

Clinician characteristics and acute pain

- Physician non-white race associated with significantly better pain treatment in ED[1]
- Provider gender as opposed to patient gender was a factor:
  - Female physicians more likely to administer analgesics than male physicians (66% vs 57%, $P = 0.009$)[2]

1. Heins J. Pain 2010; 2. Safdar Pain Medicine 2009

Measuring Pain



No objective pain indicator

- Satisfaction
- Recommend to a friend
- Choose again
- % with severe pain (often 7-10/10)
- McGill pain questionnaire
- Pain scales
  - Verbal 0-10, 0-100; Visual Analog Scales
  - Clinically significant difference? 1.5 – 2 /10

Pain Descriptors and Experimental Cervical Dilation

experimental pain menstrual pain

Percentage of words chosen

70
60
50
40
30
20
10
0

Shooting
Boring
Sharp
Hot
Dull
Taut
Annoying
Drawing
Squeezing

MPQ word descriptors

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Bajaj. Pain 2002, Arendt Eu J Pain 2004

Factors Associated with Discomfort with Routine Pelvic Exams

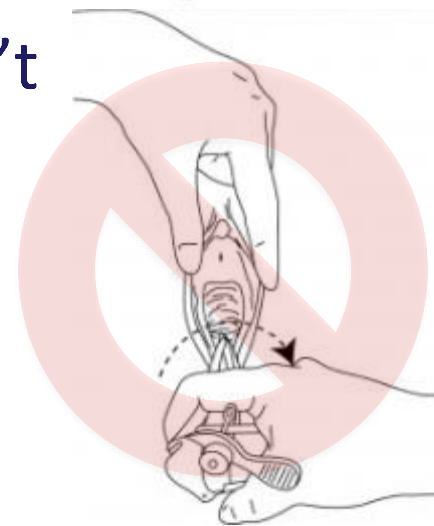
- Mean pain 3.2/10
- 17% had pain of 6-10/10 with pelvic exam
- 30% of those with a history of sexual abuse
- **Factors associated with high pain:**
  - Age < 26 (OR=2.75)
  - Presence of one or more mental health problems (OR=1.9)
  - History of sexual abuse (OR=1.85)
  - Dissatisfaction with present sexual life (OR=1.7)
  - Negative emotional contact with the examiner **(OR=8.2)**

Adjusted odds ratios, Hilden et al., Acta Ob G Scand. 2003

Creating rapport is pain control.

Minimizing Pain with a Speculum: 201

- Ask if they are ready!
- Gel lubrication significantly decreases pain[1]
- Use the right size (shortest possible for uterine procedures, open angle for large buttocks)
- Avoid scraping sensitive anterior wall (don't start at 90 degrees then rotate)
- Don't open more than needed.
- Avoid "popping" the cervix into view or snapping it at time of speculum removal
- **Move slowly**



Gungorduk K et al. Eur J ObG and Repro Bio 2015

Trauma-Informed Care for ALL

Patient in Control	• Knock before entering • Ask before doing anything (esp. touching) • Discuss the signal to pause
Establish Trust	• Meet patient when clothed • Ask about preferences, concerns, interests • Partner/friend present
Calm, Respectful Atmosphere	• Keep patient's body covered • Language, avoid interruptions, room temp
Low Stimulation	• Move & speak slowly, esp. during exam • Consider topical anesthetic, avoid noise

Good resource: https://hiveonline.org/wp-content/uploads/2016/06/Landau-Breakout-Beyond-Compassion.pdf

Strategies for Acute Pain

Multimodal pain management	Preemptive analgesia
More than 1 class of meds or analgesic technique	Intervention more effective PRIOR to tissue injury
local anesthetic + NSAID + narcotic + benzodiazepine + **nonpharmacologic strategies**	Increased pain response to subsequent stimulation ("wind-up" or "hyperanalgesia")

Crews. JAMA 2002

Levels of Sedation

	Minimal Sedation (anxiolysis)	Moderate Sedation	Deep Sedation
Example →	Oral (or SL) lorazepam and/or hydrocodone	Fentanyl 50-100 mg + midazolam 1-3 mg IV	Add propofol
Responsiveness	Normal response to verbal stimulation	Purposeful response to verbal or tactile stimulation	Purposeful response after repeated or painful stimulation
Airway	Unaffected	No intervention required	Intervention may be required
Spontaneous ventilation	Unaffected	Adequate	May be inadequate
Cardiovascular function	Unaffected	Usually maintained	Usually maintained

Patient reaction defines level of sedation, not medication dose

Example: Abortion Anesthesia What Women Choose

Given the choice of general vs. local ONLY

Nearly all women would prefer no pain (whether awake or asleep) though other preferences vary[2]

40%
Local
Ambulatory
Avoid side effects
Feel awake

60%
General
No pain
Less anxiety

1.Clark et al. Contraception 2002 2.Allen et al. Contraception 2012

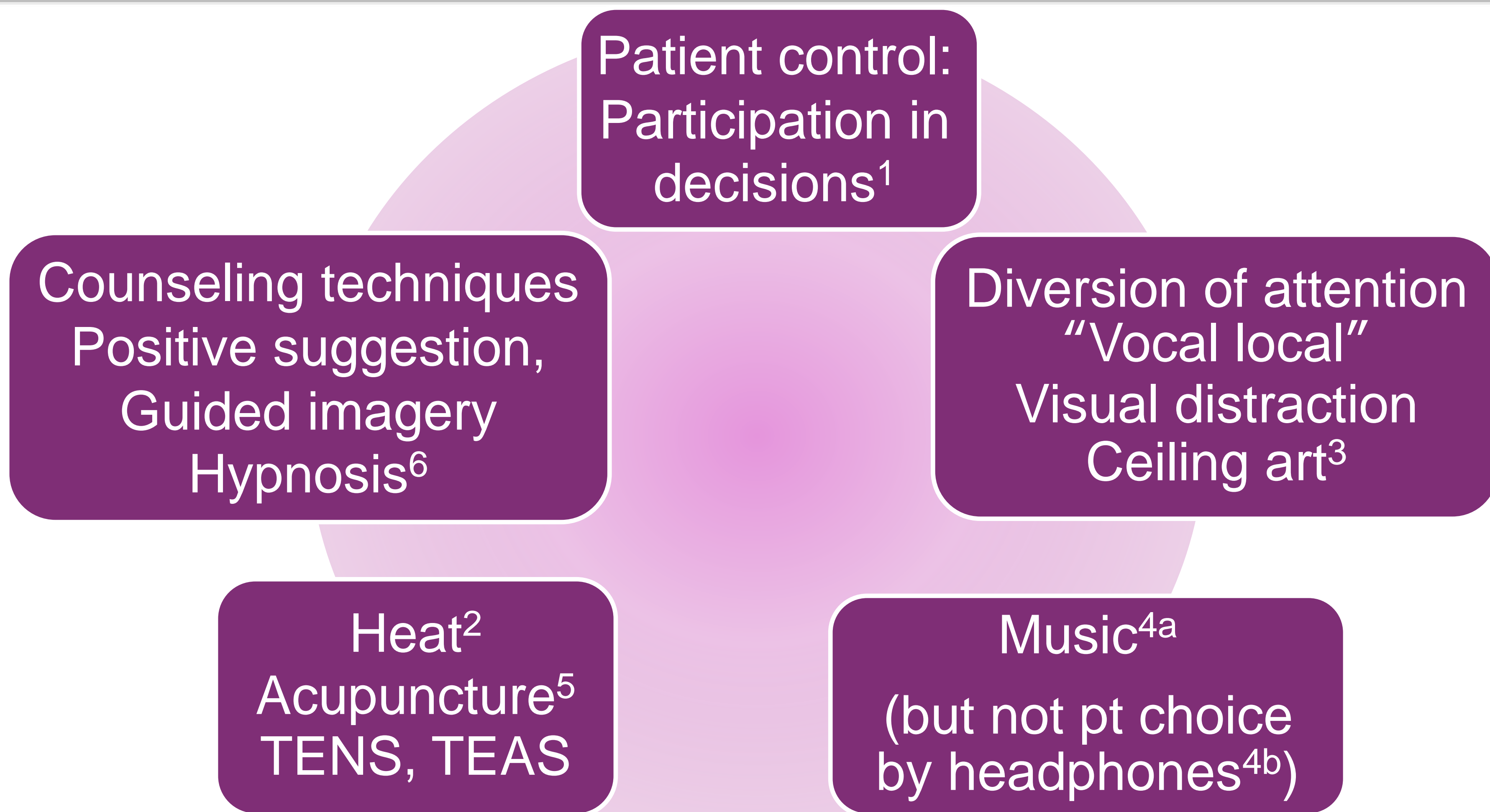
Benzodiazepines for Office Procedures

- Anxiety increases the volume of pain signals and decreases ability to cope (& slows stomach emptying)
- 1mg lorazepam: Anxiety scores drop instead of rise. Pain higher than those choosing nothing
  - Too little for most who seek an effect!
- 10mg midazolam PO 30-60 min prior[4] (~2 mg lorazepam)
  - Less anxiety pre-op, less nausea
  - More sleepy and amnesia after
  - No change in satisfaction
- Can call in, pt brings to clinic

Equivalency, Duration		
Midazolam	5 mg	4-6 hrs
Lorazepam	1 mg	6-8 hrs
Diazepam	5 mg	10+hrs

Wiebe Contracep 2003; Allen Contracep 2006;
Lowenstein Contracep 2006; 4. Bayer ObG 2017

Nonpharmacologic pain management



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2. Atkin ObGyn 2001; 3. Carwile, JLGTD 2014; 4.Cepeda.Cochrane Review 2006
4b. Guerrero Contrac 2012; 5.Kotani Anesth 2001; 6. Famonville. Pain 1997

Language considerations…

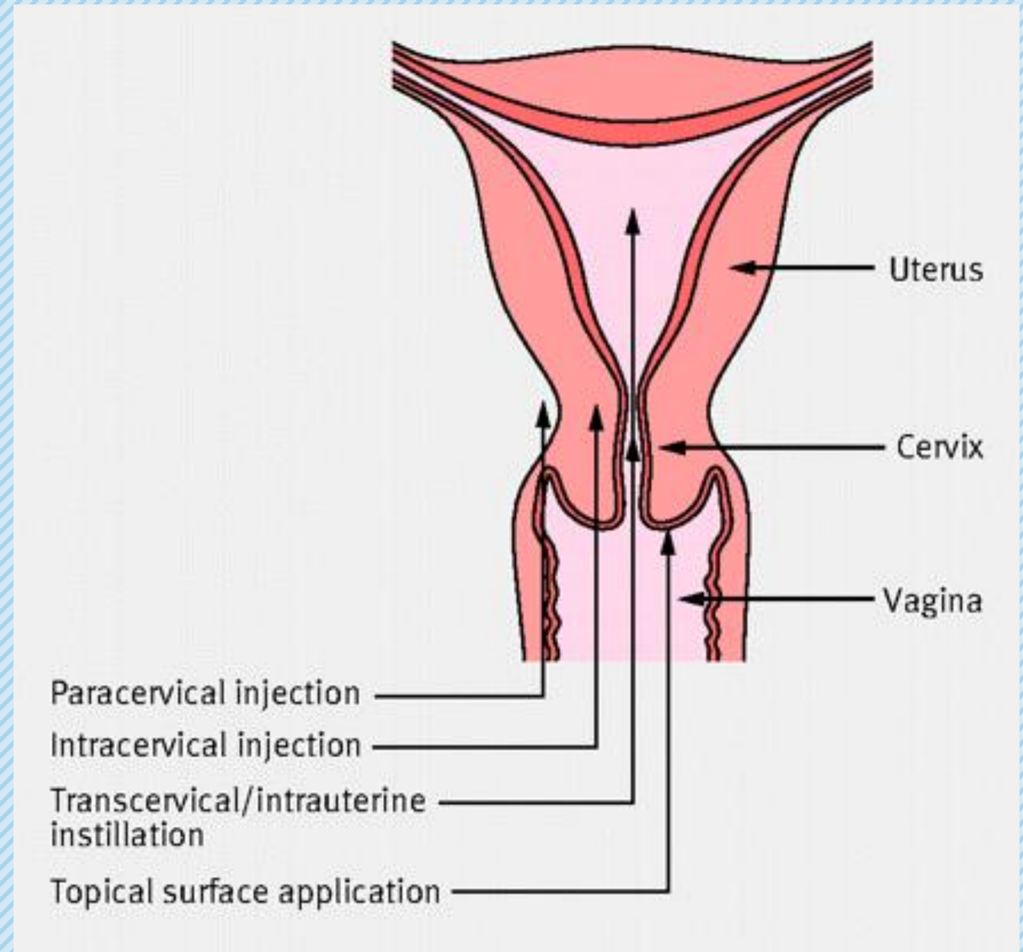
Instead of:	Try:
• “Relax”	“try taking a deep breath” “It’s a natural reaction to lift up. See if you can let your hips be heavy on the table.”
• You might feel “a pinch” or ”a stick and a burn”	“You might feel a sensation” “a twinge”
• “You’re doing great”	“I can see you’ve had practice with relaxation.”

LOCAL ANESTHESIA

Other specialties expect it to work.

They aim to block all the nerves they will irritate and use as much as needed within safety range

“I would never do a block and not test it to be sure it worked.”
–Dentist to me, 2003



Cervical & Uterine Nerves

Uterine fundus

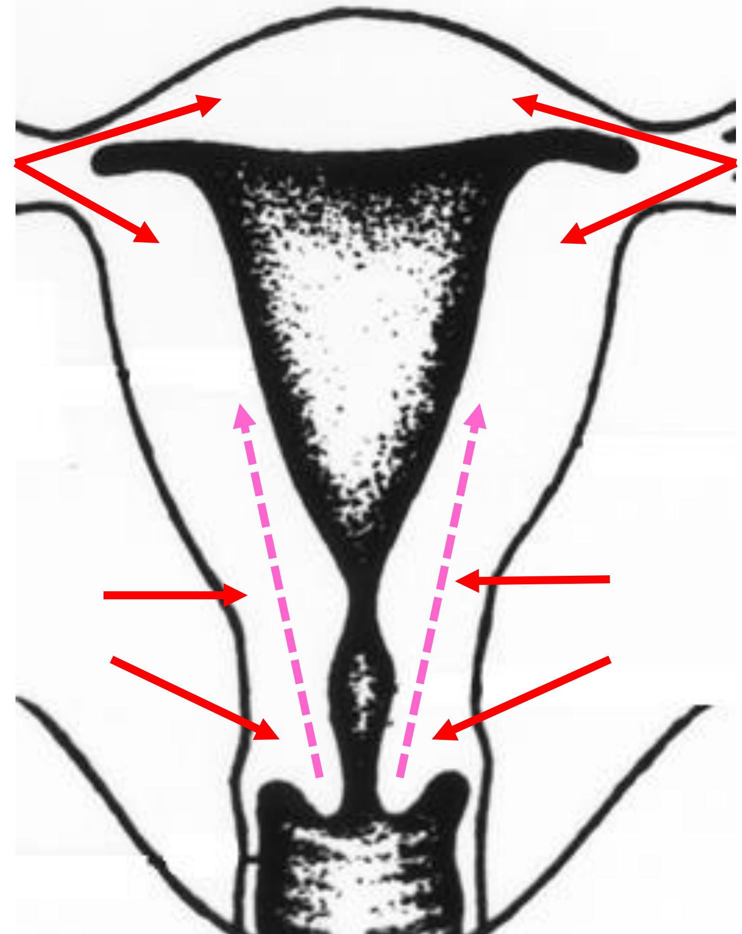
Sympathetic nerves via:

- infundibulopelvic pelvic ligament → utero-ovarian ligament
- inf hypogastric nerve through uterosacral ligaments T10 - L1

Lower uterus/cervix

- Parasympathetic Frankenhauser plexus lateral to cervix, S2 - S4

Autonomic and sensory nerves



Tingaker. Repro bio & endoc 2006

Variables in LA effect

Bottom Line:

TEST for analgesia before beginning procedure and add more if safe to do

- Agent
- Dose
- Volume and concentration
- Distance to nerves
- Size/type of nerves
- Tissue perfusion (vasodilation)
- Temperature of injection
- pH of injection
- Depth of injection
- Rate of injection

Maximum Dosing

Local Anesthetic	Onset (mins)	Max Dose (mg/kg) without/with epi	Max Dose (mg) without/with epi	55kg pt dose without/with
Lidocaine	4-7	4.5/7 mg/kg	300/500 mg	25/38 mL
Bupivacaine	10-20	2.5 mg/kg	175 mg	55 mL
Chloroprocaine	fast	11/14 mg/kg	800/1000 mg	60/77 mL

- Rough estimates that are not evidence-based.
- Lower peak levels and slower absorption with vasoconstrictor
- Adding bicarb (to lidocaine) speeds onset of action
- Bupivacaine with less difference since med is vasoconstrictive

Lidocaine Toxicity & Side Effects

plasma concentration lidocaine (mg/L)

26
24
22
20
18
16
14
12
10
8
6
4
2
0

respiratory arrest
coma
decreased consciousness
seizures
muscle cramps
visual problems
dizziness, tinnitus
numbness of tongue

severity of systemic toxicity

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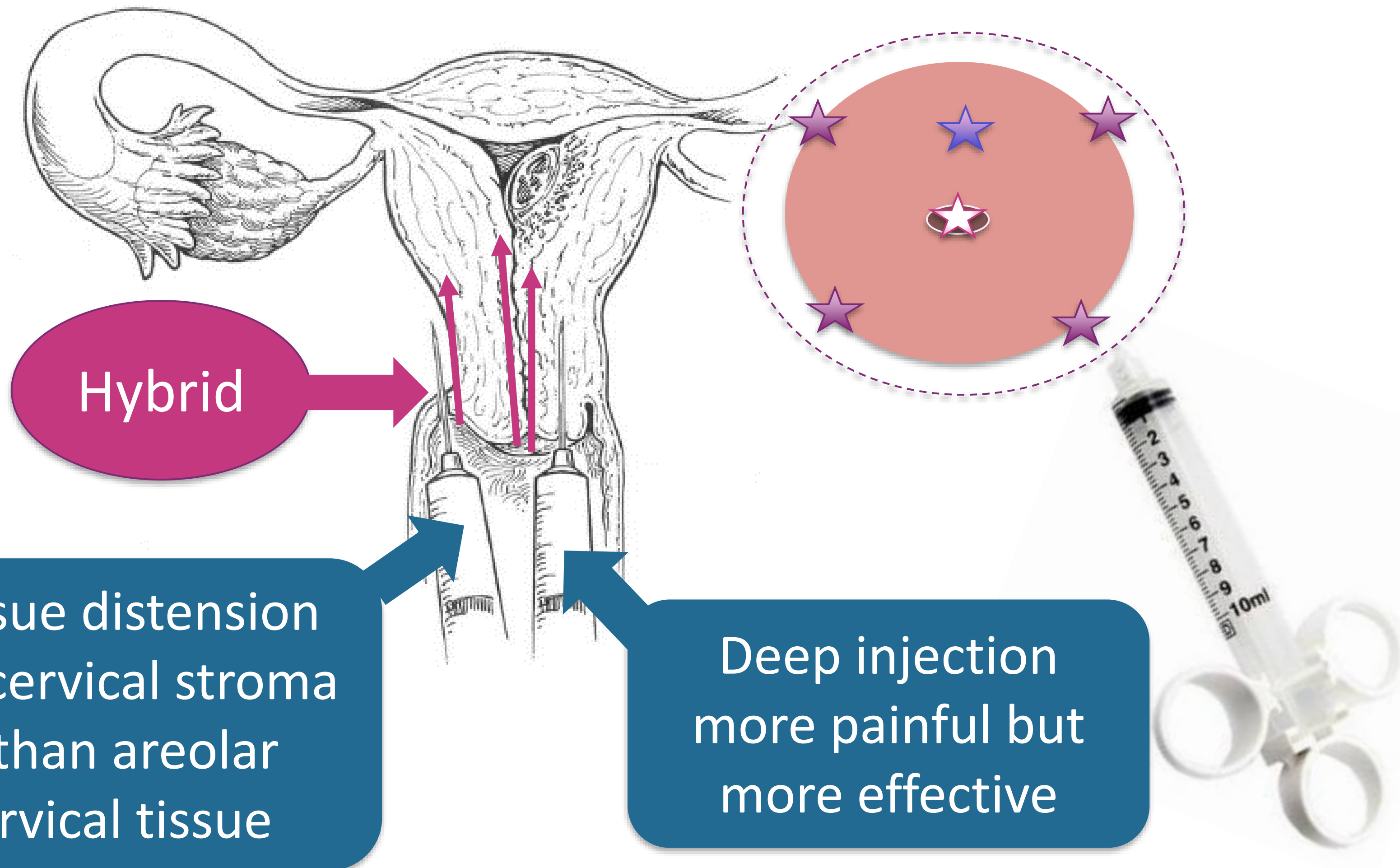
Carin MA et al. Neoreviews, 2008

Prevent
Local Anesthetic Systemic Toxicity (LAST)

- ✓ Aspirate for blood prior to injection
- ✓ Monitor total dose
- ✓ Monitor patient symptoms; Stop after partial dose to check symptoms
- ✓ Use larger volume of more dilute solution
- ✓ Inject multiple sites/depths
- ✓ Prepare for toxic and allergic reactions

Treatment: 100 mL 20% intralipid IV

“Paracervical Block”



"Standard" block is not *enough*. Can we do better?

Larger dose	Add MORE if patient feels pain with sound. Consider after procedure. Consider dilution.
Aim for all nerves	Inject at internal os, uterosacral, fundus if possible; consider intracavitary
Wait for it to work	RCT's without difference. Obs studies, pharmacokinetics & neurobiology say WAIT
Minimize block pain	Buffer. Inject ahead of the needle. Small gauge. Topical gel or spray.

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1. Cochrane review 2010; 2. Saxena Contracep 2003, Guney Int J Ob Gyn 2007; 3.Waddell J Min Inv Gyn 2008; 4. Cochrane review 2015, 5. Ireland Ob Gyn Surv 2016

Local Anesthetic can HURT

- Most painful part of procedure sometimes
- Deep blocks hurt more
- Minimize pain with block:
  - ☑ Topical anesthetic first *or* if pain with injection
  - ☑ Buffered lidocaine (1mL in ea 100 mg lidocaine)
  - ☑ Small gauge needle (25G)
  - ☑ Slow injection
  - ☑ Next injection in anesthetized area
  - ☑ Inject ahead of needle
  - ☑ Distraction (tap leg)

1 Wiebe Am J Ob Gyn, 1992, 2. Stubblefielf. Int J Gynecol Obstet 1989, 3. Wiebe Int J Gyn Obstet 1995, 4. Wiebe Am J Ob Gyn, 1992, 5. Phair Am J Ob Gyn, 2002, 6. Wiebe Contraception. 2003

Topical cervical anesthesia

Cervical procedures 20% gel improved pain with:

- Cervical biopsy
- Paracervical block
- Tenaculum placement

Intrauterine procedures

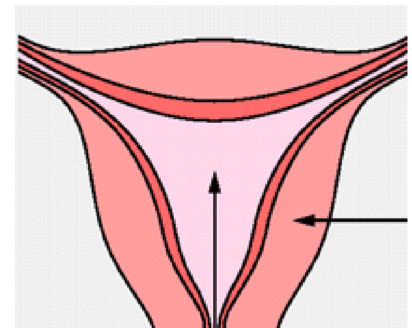
- **IUD:** 4 sprays reduced pain 3.2 → 1.0/10 (parous women)[4]
  Mostly negative evidence for gel [1,5,6]
- **Aspiration:** 2 sprays 10% lidocaine + 8 mL PCB improved pain 6.6 → 2.4/10.[2]
- **EMB:** 4 sprays reduced pain 5.1 → 3.5/10 [3]

UCSF

1. Rabin ObGyn 1989 2. Karasahin Contracep 2011 3. Aksoy J Ob Gyn 2015; 4. Aksoy. FP & Repro HC 2014; 5.Maguire Contrac 2012; 6.Allen Contrac 2015

Intrauterine anesthesia

- 5mL 2% lidocaine
- 14 to 18 gauge angiocath
- Advance through cervix, SLOW infusion into cavity
- Hold syringe at cervix for 2 minutes



- Can combine with paracervical block

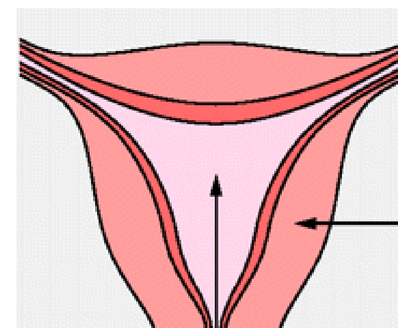
Intrauterine Lidocaine for EMB

2% 5mL for 3 mins

10
9
8
7
6
5
4
3
2
1
0

Placebo   2% lidocaine intrauterine

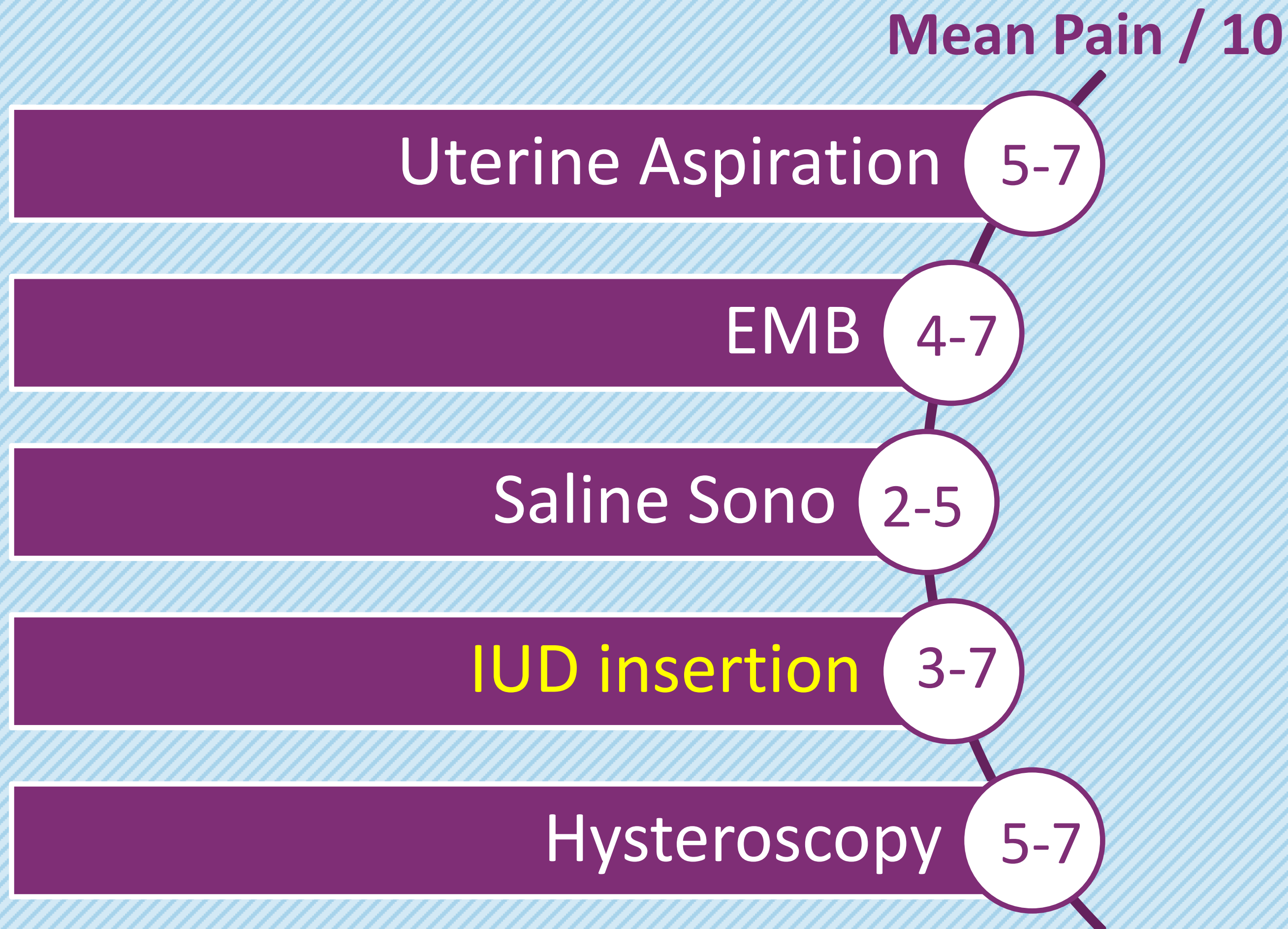
Trolice 00
Dogan 04
Güney 06
Hui 06
Api 10
Rattanach. 05



- No effect on pathology
- = Paracervical block for EMB

Kosus M et al. Pain Res Manag, 2014; Mercier RJ et al. Obstet Gynecol, 2012, Ireland et al Obs Gyn Surv 2016

PAIN WITH **INTRAUTERINE** PROCEDURES



Misoprostol before intrauterine procedures

IUC	Most studies show it does NOT help. Increases pre-procedure pain[4,5]
HSC	Improved pain but ONLY with scopes > 6mm[3,5]
EMB	Some with improvement, most with no difference and increased cramping [2.5]
MVA	Proc pain may improve but significant side effects and pain before.[1,5]

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1. Cochrane review 2010; 2. Saxena Contracep 2003, Guney Int J Ob Gyn 2007; 3.Waddell J Min Inv Gyn 2008; 4. Cochrane review 2015, 5. Ireland Ob Gyn Surv 2016

NSAIDs for Uterine Procedures

- Clearly effective for dysmenorrhea and uterine aspiration
- Little difference in efficacy between NSAID types in population, but large inter-individual difference
- Mixed evidence, but biologically plausible + safe + validation of need for pain control
- Ibuprofen has min effect on platelet aggregation, but naproxen, tramadol or ketorolac may be better for IUD
- Studies show modest reduction in intra- & post- uterine procedure pain, including IUD insertion

Ireland, Allen. Ob & Gyn Sur 2016; AMA Pathophys of Pain 2005

NSAID for IUD insertion

In Nuliparas:

Ketorolac
Placebo

Median visual analog scale pain scores (cm)

0 1 2 3 4 5 6 7 8 9

Anticipated pain
Pain with injection
Speculum insertion
Tenaculum placement
Uterine sounding *
IUD placement *
5 minutes after insertion
15 minutes after insertion *

In Multiparas:

Tramadol 50mg
2.3/10

Naproxen 550mg
2.9/10

Placebo
4.9/10

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NSAID = Nonsteroidal anti-inflammatory drug.

Ngo et al. ObGyn 2015

IUD Types

	Copper	Liletta	Mirena	Kyleena	Skyla
Hormone	none	LNG	LNG	LNG	LNG
Dose	-	52 mg	52 mg	19.5 mg	13.5 mg
Release mcg/d	-	20 10 at 5 yrs	20 10 at 5 yrs	17.5 7.4 at 5 yrs	14 5 at 3 yrs
Years of use	10-12 (FDA 10)	5-7 (FDA 5)	5-7 (FDA 5)	5	3
Special issues	Non-hormonal, heavier bleeding	Generic Mirena, non-profit company	Low systemic, 90% less bleeding	Smaller, little lower dose, less amenorrhea	Smaller, v. low dose, no ovarian change

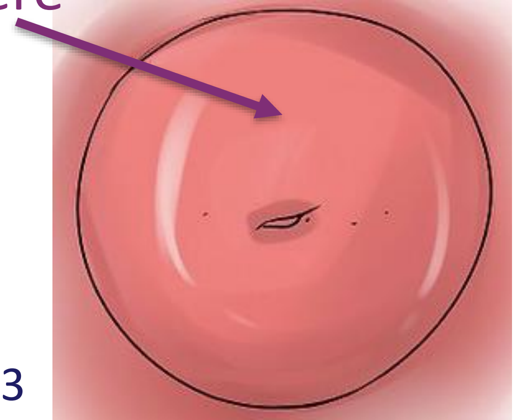
UCSF LNG = Levonorgestrel; FDA = Food and Drug Administration; yrs = years

IUD Insertion Steps

- Preparation
- Bimanual
- Speculum
- Antiseptic
- Tenaculum
- Sounding
- Insertion
- Cut strings
- Remove inst.
- Post-procedure

PAIN

Tenaculum Placement

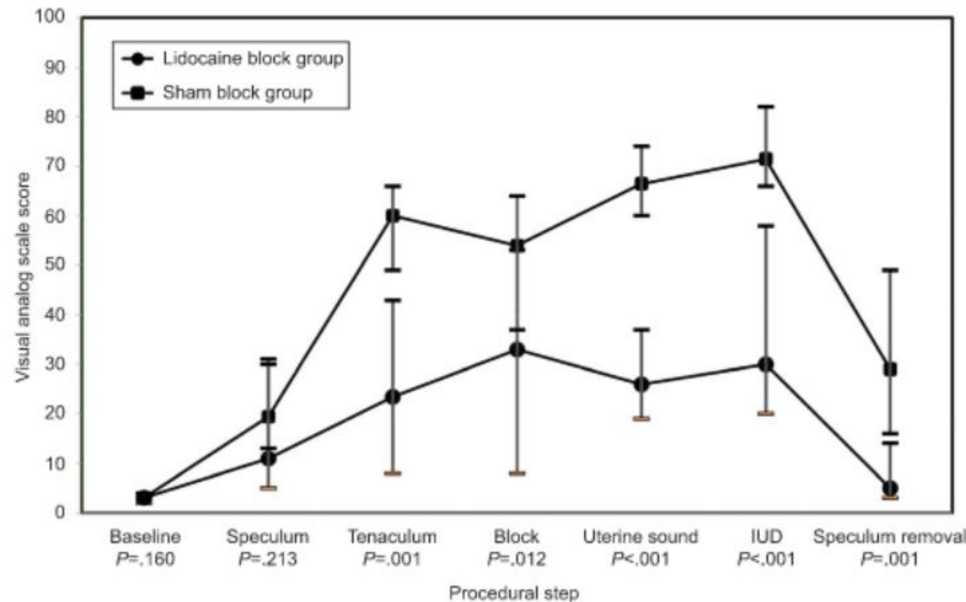


- If you place it, you'll likely USE it
- More stretch receptors than pinpoint
- **Most effective: Intracervical injection[1]**
- Also helpful: Forced cough[2] Spray or gel[3]
- I use **3-5 mL** with **25G needle** and think no one should EVER feel a tenaculum placed.
- 1-2 mm superficially and inject slowly

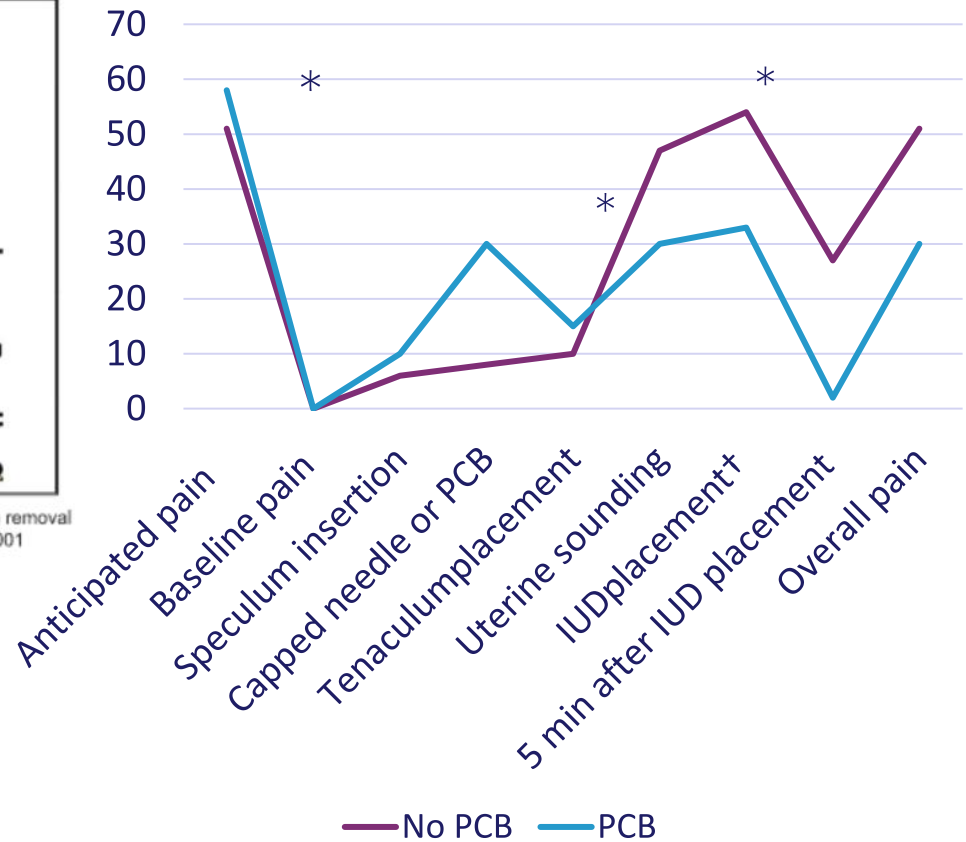
1. Naki Ob Gyn Invest 2011 & Allen 2013; 2. Bogani Eur J Ob G 2014; 2. Gooldhwaite Contrac 2014; 3. Rabin 1989; Davies 1997; Costello 2005; Perez. Eur J Contra Repro Health, 2017.

1% Lidocaine vs. Sham Block
Pain with IUD insertion, nulliparas

10 mL



Median Pain Scores 20 mL



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Akers et al. ObGyn 2017

Mody et al. ObGyn 2018

1% Lidocaine vs. Sham Block
Pain with IUD insertion, nulliparas

10 mL

Pain Scores 20 mL

100
90
80
70
60
50
40
30
20
10
0

Visual analog scale score

Lidocaine block group
Sham block group

Baseline
P=.160

*

Overall pain

5 min a

No PCB
PCB

Prior study by Mody of 10 mL block noted pain with insertion **62 → 24** /100 *(not significant)*

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Akers et al. ObGyn 2017

Mody et al. ObGyn 2018

Systematic Review
Paracervical Lidocaine for IUD Insertion

- Lidocaine was associated with lower pain scores during

	Mean Difference
– Tenaculum placement	-0.99
– IUD insertion	-1.26
– Immediate post-IUD insertion	-1.25

Perez et al.. Eur J Contrac Repro Health, 2017.

IUD Insertion: Putting it Together to Prevent Pain

- Expectations, promise of patient control
- Consider offering anxiolysis
- Naproxen, tramadol (or ibuprofen) PO
- Gentle language, ask if ready, heat, tap leg…
- Consider topical at introitus
- Gentle, slow with all movements, gentle fundal touch
- Local anesthetic:
  - Tenaculum site at least (2-4 mL)
  - Minimize pain with injection (or use intrauterine)
  - 12-20 mL, wait 2 min, consider dilution and bicarb, test

When you need to optimize… UCSF “WOC Block”

Recipe = 42mL:

- 20 mL 1% lidocaine
- 20 mL saline
- 2 mL bicarb 8.4%
- 3-4u vasopressin

Equipment:

- 25G 1.5in or spinal needle
- 22G spinal needle
- Control syringe

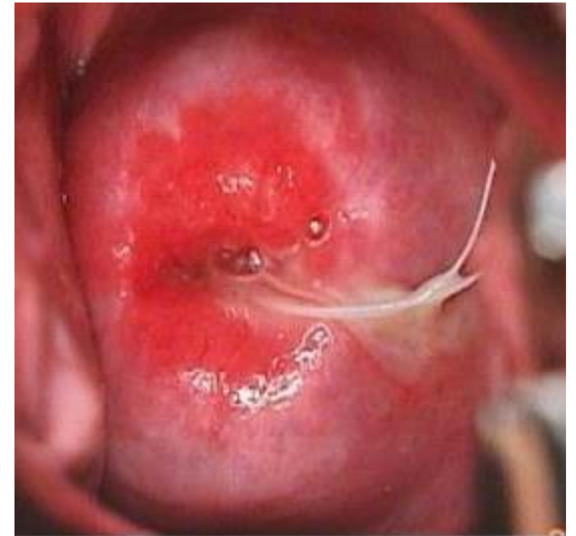
1) ~25 mL 4-point paracervical (after tenac site)
2) Wait a bit to check for nausea/dizziness
3) ~17 mL with 22G spinal needle through os at internal os and above
4) Check for pain w/ sound or dilator
5) If any pain, wait longer *and* add more plain local

IUD Removal (With Strings)

- No training necessary!
- Most important: offer other form of contraception or preconception discussion

Equipment:
Ring forceps

1) Discuss possible pain
2) Ask pt. to cough
3) Pull quickly on strings as she coughs (helps with the visceral feeling pt often has when you remove it)
4) Consider block on occasion



IUD Removal

Can patients do it themselves?

- 1 in 5 successful, but more likely to try it and recommend it if they know they can try self removal

What if it I pull and it doesn't come?

- If you refer, we will pull until the string or arm breaks
- Strong pulls more likely to need local anesthesia

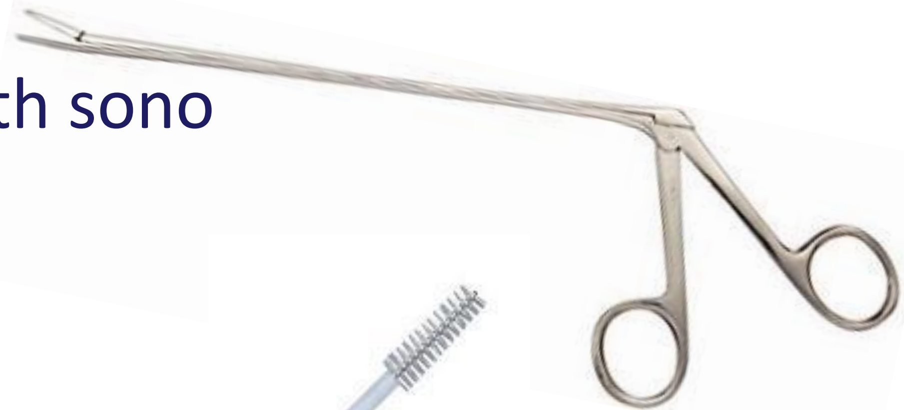
I wish she would keep it!

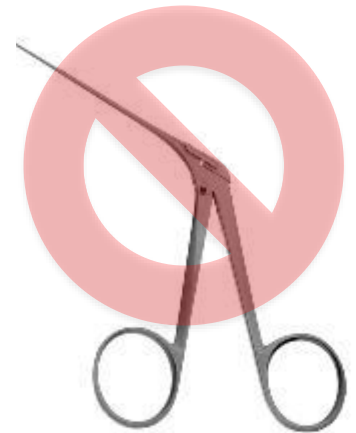
- Pt-centered care includes IUD removal when requested.
- Avoid perceived or real barriers to IUD removal

Foster et al….IUD Self-Removal, Contraception 2014
Amico et al "She just told me to leave it" Contraception 2016

IUD Removal WITHOUT Strings

1. Confirm IUD in uterus with sono
   (Remember KUB required to confirm IUD is gone)
2. Try cytobrush in cervix
3. Consent if using forceps
4. Can try below internal os without tenaculum or block
5. Recommend tenaculum and block if above internal os
6. Consider ultrasound





Too thin

Intrauterine Local Anesthesia

Procedure	Evidence
EMB "Lost" IUD Removal Saline Sono	Significant improvement[1,3] 5mL of 2% lidocaine
MUA	Significant improvement 5mL of 4% lidocaine[2]
HSC	Mixed evidence.[4-6++]

Sys Rev Mercier ObGyn 2012; 1. Guney 2006; 2. Edelman 2006; 3. Guney J Min Inv gyn 2007; 4. Frishman ObGyn 2004, Costello Fert Steril 2002. Isley Contr 2012

Colposcopy and Cervical Biopsy

- Mean pain scores 3.0 and 3.5[1]
- Training necessary (except for gross lesion)

Most effective:

- Superficial 0.5 mL 1% lidocaine with 27G needle[2]
  - Significant pain reduction 4 → 1.2/10
  - Pain for injection 1.5/10
- Forced cough also helpful[5]

Likely NOT effective:

- NSAIDs
- Topical anesthetic [3,4,5]

1. Church ObGyn 2001, 2. Oyama Am J ObG 2003; 3. Shaughnessy J Fam Pract 1998; 4. Wong BJOG 2008; 5. Ireland Ob Gyn Sur 2016

Colposcopy and Cervical Biopsy

Visual distraction reduces pain

321 women undergoing colpo

6 mos before and after renovation

54% reduction in pain

Music also shown to be helpful

Carwile, *JLGTD 2014*

Implant contraception

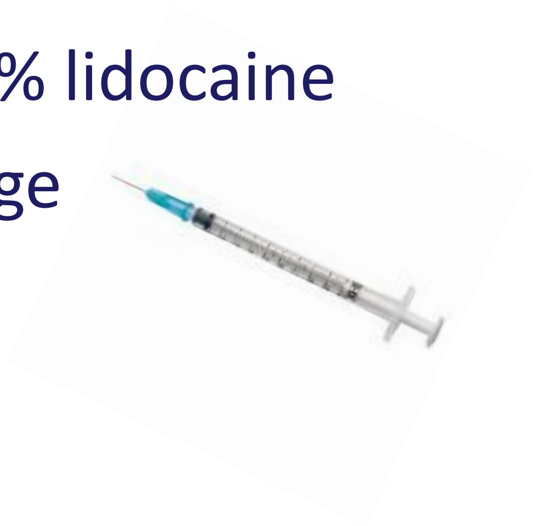
Insertion

- 2-2.5mL 1% lidocaine
- 1.5 in needle

- Tiny bleb
- Inject ahead of needle
- Wrinkle skin to inject beyond needle length

Removal

- 0.5mL 1% lidocaine
- TB syringe



Considering buffering lidocaine

Pain Control In Summary…

- ✓ Cultivate empathy
- ✓ Demonstrate you care about patient comfort
- ✓ Talk to patients about reasonable pain control options (even if you recommend against them or can't offer them)
- ✓ *Individualize* pre-medication (and other care!)
- ✓ Optimize local anesthesia
- ✓ Pain scales aren't perfect, but are a good tool.

Pain Control Shopping List

- Needles:
  - 25G 1.5 inch
  - 25G spinal
  - 22G spinal
  - TB w 25 or 27G
- Control syringe
- 14-16G angiocaths
- Heat packs

- Injectable local anesthetic
  - Lidocaine 1%
  - Lidocaine 2% (intracavitary)
- Additives (in order of rec):
  1. Saline flush syringes
  2. 8.4% sodium bicarb
  3. Vasopressin
- Topical 2.5% lidocaine + 2% prilocaine (Emla) or 4% lido