

# **A Literature Review on the Use of Analgesia during In- Office Intrauterine Gynecologic Procedures**

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## **Abstract**

**Research Question:** Do different pain control methods during in-office gynecologic procedures have significant impact on women's perception of pain?

**Introduction:** The conversation surrounding pain control during in-office gynecologic procedures has gained popularity over the last several years as patients share their stories on social media. There is a paucity of information on analgesia use during intrauterine device (IUD) insertions and other gynecologic procedures. There is concern that patients' fears surrounding the insertion procedure limits the amount of people who decide on this highly effective method of contraception. The aim of this project is to examine 3 areas impacting the pain control provided during office based gynecologic procedures. The first and largest component is what literature is available on patients' perceptions of pain with and without analgesia for intrauterine procedures. The second area explored is the health care providers perception of the procedure with and without analgesia. The third area of exploration is how patient perceptions and shared decision making regarding the types of pain control offered during obstetrical or gynecological procedures impacts the long-term relationship between provider and patients.

**Methods:** A literature search was conducted to find scholarly articles on different types of analgesia studied for IUD insertion and similar intrauterine gynecologic procedures including hysteroscopy, balloon catheterization, as well as tenaculum use. Exclusion criteria was OB/GYN procedures that cannot be performed in-office.

### **Results:**

Aim 1: The available literature on different methods of analgesia for office-based gynecologic procedures is sparse and inconclusive. Some small trials have been executed to find pain control options that might provide relief for patients but repeat studies with a larger patient sample and controls would be needed to draw conclusive data on which methods work best. While some studies endorsed pain relief from cervical block, paracervical block, topical or oral analgesia agents, other studies refuted the benefits of each of these methods.

Aim 2: Minimal studies are available on the perceived benefit to the provider when using analgesia for office-based gynecologic procedures. One qualitative study discussed the increase ease of procedure and ease of sample obtainment by the provider.

Aim 3: The available literature on shared decision making and the impact of social media on patient preferences showed that most of the available patient-created content surrounding IUD placement is negative. Studies on shared decision making showed higher levels of patient satisfaction with their care when given decision making tools.

**Conclusions:** Of the available literature on the efficacy of analgesia during office based gynecologic procedures, most of the studies were small, low-powered, single site trials that concluded with the need for repeat studies to be completed for conclusive recommendations to be determined. Although some methods showed improved pain scores by patients, no method is universally used by providers who perform these procedures which can cause frustration for these patients and a mistrust in the medical system. Patient decision making might be impacted if they feel they are not being adequately counselled or offered acceptable treatment options by their providers. While further, high-powered studies need to be conducted to arrive at a pain management consensus on this front, patient desires and attitudes should not be ignored.

**Research Question**

P – With the available literature on women undergoing in-office gynecologic procedures like IUD insertions, colposcopy, or endometrial biopsy

I – did different pain control methods during gynecologic procedures

C – compared to similar groups who did not receive analgesia for office-based gynecologic procedure

O – have any significant impact on their perception of pain during the procedure.

### **Introduction and Significance:**

The long acting reversible contraception (LARC) intrauterine device (IUD) is a highly effective, long lasting type of birth control device that is inserted into the uterus and can provide contraception for up to 10 years depending on the type of IUD selected. The insertion procedure involves guiding the device through the vagina and cervix, into the uterus, where it is then deployed and the insertion catheter is removed and the strings at the bottom of the device are clipped<sup>(1)</sup>. While parity is not a determining factor for IUD eligibility, it might be more difficult to place the device in a nulliparous patient than one who has had children prior to IUD insertion. Nulliparous patients might require a degree of cervical dilation for IUD placement, which could cause more discomfort during the procedure.

The American College of Obstetricians and Gynecologists (ACOG) published a video on their website about pain management with IUD insertion. The video highlights that the pain experienced during this procedure is dependent on the patient, with more pain experienced by nulliparous women than multiparous women<sup>(2)</sup>. Although some patients do not experience pain with IUD insertion, there are patients who categorize their pain as severe. The video goes on to say that although there have been studies done to find proper pain management for this procedure, there has not been any reliably effective analgesic established. Cervical block has been shown to be effective for some gynecologic procedures, but the data on cervical block for pain reduction during IUD insertion is inconclusive. According to the video review of the available data, topical lidocaine formulations do not improve pain during insertion. Local anesthesia or cervical block can improve the pain associated with tenaculum use. Cervical block has also been shown to improve vasovagal responses in patients undergoing IUD insertion who have a history of vasovagal responses. Oral and intramuscular non-steroidal anti-inflammatory drugs have not been shown improve insertional pain associated with IUD placement but can improve post-procedural pain and cramping. Routine Misoprostol use is not recommended for IUD insertion because it can increase pain and cause additional side effects like nausea and vomiting. The video concludes with advising providers that analgesia use for IUD insertion should be individualize based on patient history.

Despite IUDs having a failure rate of less than one percent, it is not utilized as often as other forms of birth control. The percentage of women in North America who use an IUD as birth control was less than 1% in a 2004 study<sup>(3)</sup>. Several reasons could contribute to IUD being an

underutilized form of birth control like providers' perceptions and concerns, or accessibility and affordability, but patients' concern for pain associated with IUD placement should be examined further.

The conversation surrounding adequate pain control during in-office gynecologic procedures has gained popularity over the last several years as patients share their stories on social media.

Across platforms like TikTok, YouTube, and Instagram, people are recording themselves during or after IUD insertion to show others their experience. When you search the term 'IUD' on TikTok, the top video recommended is a patient who is recording her reaction during the insertion procedure where she can be seen writhing and expressing that she is in pain. The text in the video reads "IUD insertion is the worst pain imaginable". The video then cuts to an anesthesiologist who is advocating for the use of local anesthesia or sedation for this procedure.

In a recent study examining the top 100 videos under the IUD search on TikTok researchers found that the majority of videos from patient perspectives had a negative or ambiguous tone, and 96.8% of videos highlighted the pain of the procedure or other side effects<sup>(4)</sup>. As more people share their experiences through social media, the patient driven push for better pain management for these types of procedures grows. A quick search on IUD insertion reveals heightened concern for pain during the procedures with articles written on what to expect and how to advocate for yourself as a patient. This brings up an important point in the discussion surrounding pain control for IUD placement. The same study surveying IUD videos on TikTok found that 27.6% of the top 100 videos expressed distrust in health care providers<sup>(4)</sup>.

The conversation involving adequate pain control across all fields of medicine are surrounded by subjectivity. Some patients express minimal to no discomfort during procedures like colposcopy or endometrial biopsy, while others might be unable to tolerate the procedure at all. Pain perception is subjective in nature. There are clinical tools available like the visual analogue scale (VAS) and the simple 1-10 pain scale to help quantify the amount of pain a patient feels, but scales may vary from person to person. In a 2014 study, researchers compared the mean VAS scores for patients undergoing IUD insertions with the anticipated VAS score estimated by providers<sup>(2)</sup>. The study showed that providers underestimated the pain associated with IUD insertion by nearly 30 points on the VAS scale. The mean VAS score for patients undergoing the procedure was 64.8 mm, while the mean estimation made by the provider performing the procedure was 35.3 mm. This discrepancy can drive a further wedge between provider and

patient relationships. Although some patients might not experience pain during these procedures, the majority of the stories shared online tell a different story. This phenomenon could be attributed to a self-selection bias of patients who feel compelled to share their negative experiences versus patients who have had a positive experience and do not feel the need to contribute their perspective, but nevertheless, patients are exposed to this content, and it should be addressed accordingly.

There is a paucity of information on analgesia use during intrauterine device (IUD) insertions, which has sparked conversations online and a push to provide more answers on pain relief for invasive gynecology procedures. Most published data surrounding pain management in this population focuses on intra-operative anesthesia, post-operative pain control, and obstetrical analgesia during labor, but the studies published on office-based gynecologic analgesia are limited. Without conclusive data to support the use of one method of analgesia over another for IUD insertions, a large collective of providers opt out of offering pain control for these types of procedures due to a lack of significant evidence supporting its efficacy.

According to the Agency for Healthcare Research and Quality's website, the principle of shared decision making includes making a decision that accounts for best evidence-based practices, the providers experience, and the patient's preferences. In the case of analgesia for in-office gynecological procedures, the evidence-based approach is hard to follow due to a lack of definitive data on the subject. The providers experience may also be limited with adequate pain control methods because most practices do not have a systemic approach to pain control for IUD placement.

The aim of this project is to examine 3 areas impacting the pain control provided during office based gynecologic procedures. The first and largest component to finding better understanding on pain management for gynecologic procedures was conducting a comprehensive literature search on the methods studied on analgesia for office-based gynecologic procedures like IUD insertion, colposcopy, and endometrial biopsy. The second area explored was the health care providers' attitudes towards analgesia and perceptions of the ease of the procedure with and without analgesia. The third area of exploration was how shared decision making between patient and provider during different obstetrical or gynecological related health scenarios impacts the long-term relationship between provider and patients. By examining these topics, the goal is to better understand what the available literature on analgesia for in-office gynecologic

procedures says, as well as learn how patient and provider perceptions may converge or diverge from the available literature in order to make a more conclusive recommendation on how providers should approach this topic with their patients and make an informed decision with them.

**Methods:**

A literature search was conducted to find scholarly articles on different types of analgesia studied for IUD insertion and similar intrauterine gynecologic procedures like hysteroscopy, balloon catheterization, as well as tenaculum use. Exclusion criteria was OB/GYN procedures that cannot be performed in-office. Additional exclusion criteria included papers concerning obstetrical interventions and procedures, papers unrelated to gynecological procedures, and general anesthesia papers. Inclusion criteria were randomized control trials, case reports, non-randomized trials, and opinion papers on pain control methods for office based gynecologic procedures.

The primary literature search was through PubMed using the following searches:

Search number	Query	Sort By	Filters	Search Details	Results
16	#6 AND #14		English	((("anesthesia and analgesia"[MeSH Terms] OR ("anesthe*"[Title/Abstract] OR "anaesthe*"[Title/Abstract] OR "anagesia*"[Title/Abstract] OR "pain control*"[Title/Abstract] OR "pain manag*"[Title/Abstract] OR "pain reduc*"[Title/Abstract]) OR "pain management"[MeSH Terms]) AND (((("office"[All Fields] OR "office s"[All Fields] OR "officer"[All Fields] OR "officer s"[All Fields] OR "officers"[All Fields] OR "offices"[All Fields]) AND "gynecol*"[All Fields]) AND "procedur*"[Title/Abstract]) OR ("IUD"[Title/Abstract] OR "intrauterine device"[Title/Abstract] OR "intra uterine device"[Title/Abstract]) AND ("placement"[Title/Abstract]	434



			OR "insert*"[Title/Abstract])))) AND (english[Filter])	
<b>15</b>	#6 AND #14		("anesthesia and analgesia"[MeSH Terms] OR ("anesthe*"[Title/Abstract] OR "anaesthe*"[Title/Abstract] OR "anagesia*"[Title/Abstract] OR "pain control*"[Title/Abstract] OR "pain manag*"[Title/Abstract] OR "pain reduc*"[Title/Abstract]) OR "pain management"[MeSH Terms]) AND (((("office"[All Fields] OR "office s"[All Fields] OR "officer"[All Fields] OR "officer s"[All Fields] OR "officers"[All Fields] OR "offices"[All Fields]) AND "gynecol*"[All Fields]) AND "procedur*"[Title/Abstract]) OR (("IUD"[Title/Abstract] OR "intrauterine device"[Title/Abstract] OR "intra uterine device"[Title/Abstract]) AND ("placement"[Title/Abstract] OR "insert*"[Title/Abstract]))))	456
<b>14</b>	#11 OR #13		((("office"[All Fields] OR "office s"[All Fields] OR "officer"[All Fields] OR "officer s"[All Fields] OR "officers"[All Fields] OR "offices"[All Fields]) AND "gynecol*"[All Fields]) AND "procedur*"[Title/Abstract]) OR (("IUD"[Title/Abstract] OR "intrauterine device"[Title/Abstract] OR "intra uterine	4,464

				device"[Title/Abstract]) AND ("placement"[Title/Abstract] OR "insert*"[Title/Abstract]))	
<b>13</b>	(IUD[Title/Abstract] OR intrauterine device[Title/Abstract] OR intra-uterine device[Title/Abstract]) AND (placement[Title/Abstract] OR insert*[Title/Abstract])			("IUD"[Title/Abstract] OR "intrauterine device"[Title/Abstract] OR "intra uterine device"[Title/Abstract]) AND ("placement"[Title/Abstract] OR "insert*"[Title/Abstract])	3,439
<b>11</b>	office gynecol* procedur*[Title/Abstract]			((("office"[All Fields] OR "office s"[All Fields] OR "officer"[All Fields] OR "officer s"[All Fields] OR "officers"[All Fields] OR "offices"[All Fields]) AND "gynecol*"[All Fields]) AND "procedur*"[Title/Abstract])	1,039
<b>12</b>	(office setting[Title/Abstract] OR in-office[Title/Abstract]) AND gynecol*[Title/Abstract] AND procedur*[Title/Abstract]			("office setting"[Title/Abstract] OR "in-office"[Title/Abstract]) AND "gynecol*"[Title/Abstract] AND "procedur*"[Title/Abstract]	49
<b>10</b>	in-office gynecol* procedur*[Title/Abstract]			("in-office"[All Fields] AND "gynecol*"[All Fields]) AND "procedur*"[Title/Abstract]	112
<b>9</b>	#7 AND #8			"Ambulatory Surgical Procedures"[MeSH Terms] AND ("gynaecologic"[All Fields] OR "gynecologic"[All Fields] OR "gynecologically"[All Fields] OR "gynecology"[MeSH Terms] OR "gynecology"[All Fields] OR "gynaecological"[All Fields] OR "gynecological"[All Fields])	695
<b>8</b>	gynecological			"gynaecologic"[All Fields] OR "gynecologic"[All Fields]	413,734

				OR "gynecologically"[All Fields] OR "gynecology"[MeSH Terms] OR "gynecology"[All Fields] OR "gynaecological"[All Fields] OR "gynecological"[All Fields]	
7	"Ambulatory Surgical Procedures"[Mesh]	Most Recent		"Ambulatory Surgical Procedures"[MeSH Terms]	13,067
6	#3 OR #4 OR #5			"anesthesia and analgesia"[MeSH Terms] OR "anesthe*"[Title/Abstract] OR "anaesthe*"[Title/Abstract] OR "anagesia*"[Title/Abstract] OR "pain control*"[Title/Abstract] OR "pain manag*"[Title/Abstract] OR "pain reduc*"[Title/Abstract] OR "pain management"[MeSH Terms]	577,234
5	pain management[MeSH Terms]			"pain management"[MeSH Terms]	40,266
4	anesthe*[Title/Abstract] OR anaesthe*[Title/Abstract] OR anagesia*[Title/Abstract] OR pain control*[Title/Abstract] OR pain manag*[Title/Abstract] OR pain reduc*[Title/Abstract]			"anesthe*"[Title/Abstract] OR "anaesthe*"[Title/Abstract] OR "anagesia*"[Title/Abstract] OR "pain control*"[Title/Abstract] OR "pain manag*"[Title/Abstract] OR "pain reduc*"[Title/Abstract]	467,786
3	anesthesia and analgesia[MeSH Terms]			"anesthesia and analgesia"[MeSH Terms]	249,937
2	"Anesthesia and Analgesia"[Mesh]	Most Recent		"Anesthesia and Analgesia"[MeSH Terms]	249,937
1	"Anesthesia, Obstetrical"[Mesh]	Most Recent		"anesthesia, obstetrical"[MeSH Terms]	13,491



**Results:**

Analgesia for office-based gynecology procedures: of 434 papers narrowed by the literature search above, 23 papers met criteria to be included in literature review. Papers that were not selected were duplicate results found in the search, papers examining intraoperative general anesthesia practices, and results that were not translated into English.

<b>Article</b>	<b>Method</b>	<b>Findings</b>	<b>Significance</b>
<u>Cervical lidocaine for IUD insertional pain: a randomized controlled trial</u> (5)	<ul style="list-style-type: none"><li>• Efficacy of intracervical 2% lidocaine gel for pain relief with IUD insertion</li><li>• gel (lidocaine and placebo) placed 3 minutes prior to procedure and pain scores were measured at various time points using 10-point visual analog scale.</li></ul>	-mean score was 4 on a 10-point scale -insertional pain scores reported between nulliparous and parous women were significantly different regardless of intervention -groups arranged by type of IUD, parity, mode of delivery, and no difference in pain between placebo and treatment arms; however, nulliparous women had higher pain scores regardless of treatment or placebo. -Possibility that allowing >3 minutes for lidocaine gel could improve pain outcomes,	<ul style="list-style-type: none"><li>• Pain scores between experimental and control group for tenaculum placement (P=0.15)</li><li>• Pain scores between experimental and control group with placement (P=0.16)</li></ul>

		but would come with additional sources or patient discomfort like longer time with speculum or multiple speculum exam	
<u>Analgesic options for placement of an intrauterine contraceptive: A meta-analysis</u> <sup>(6)</sup>	<ul style="list-style-type: none"> <li>Literature search on Medline, Scopus, Clinicaltrials.org, Popline, Cochrane CENTRAL, and Google Scholar for randomized controlled trials</li> </ul>	<p>-Only paracervical lidocaine was effective in reducing VAS pain scores for tenaculum placement and IUD insertion</p> <p>-Misoprostol produced higher VAS pain scores during immediate post-insertion period</p>	<ul style="list-style-type: none"> <li>Tenaculum placement mean difference= -20.54; CI 95% -39.92 to -1.15</li> <li>IUD insertion mean difference -28.99; CI= 95% -53.14 to -4.84</li> <li>Misoprostol mean difference 2.83; CI= 95% -0.79 to 6.45</li> </ul>
<u>Paracervical Block for Intrauterine Device Placement Among Nulliparous Women: A Randomized Controlled Trial</u> <sup>(7)</sup>	<ul style="list-style-type: none"> <li>Groups assigned to receive 20cc buffered 1% lidocaine paracervical block or not block prior to IUD placement</li> </ul>	<p>-20cc 1% lidocaine paracervical block decreases pain with IUD placement, uterine sounding, and 5 minutes after placement.</p> <p>-Perception of pain for overall IUD placement procedure was lower compared to no block.</p>	<ul style="list-style-type: none"> <li>80% power (alpha=0.05) to detect 20mm difference in VAS scores with standard deviation of 28mm.</li> </ul>

<p><u>Pain control for intrauterine device insertion: a randomized trial of 1% lidocaine paracervical block<sup>(8)</sup></u></p>	<ul style="list-style-type: none"> <li>• Randomized 50 women undergoing IUD insertion to receive 10mL 1% lidocaine paracervical block or no local anesthetic.</li> <li>• Patients rated pain on 100-mm VAS scale.</li> </ul>	<p>-1% lidocaine paracervical block before IUD insertion did not result in statistically significant decrease in perceived pain compared to no anesthetic.</p>	<ul style="list-style-type: none"> <li>• Women who received paracervical block reported VAS score of 24mm and women who did not receive anesthetic reported VAS score of 62mm with IUD insertion (P=0.09)</li> </ul>
<p><u>Ketorolac for Pain Control With Intrauterine Device Placement: A Randomized Controlled Trial<sup>(9)</sup></u></p>	<ul style="list-style-type: none"> <li>• Randomized, double-blinded, placebo-controlled trial.</li> <li>• Patients received 30mg ketorolac or placebo saline intramuscular injection 30 minutes before IUD placement.</li> <li>• Pain scored on 10-cm visual analog scale.</li> </ul>	<p>-Ketorolac does not reduce pain with IUD placement but does reduce pain at 5 and 15 minutes after placement.</p>	<ul style="list-style-type: none"> <li>• There were no differences in median pain scores for IUD placement in the placebo compared with ketorolac groups (5.2 compared with 3.6 cm, P=.99).</li> <li>• There was a decrease in median pain scores at 5 minutes (2.2 compared with 0.3 cm, P≤.001) and 15 minutes (1.6 compared with 0.1 cm, P≤.001) after IUD</li> </ul>

			<p>placement but no difference for all other time points.</p> <ul style="list-style-type: none"> <li>• 22% of participants in the placebo group and 18% in the ketorolac group reported injection pain was as painful as IUD placement.</li> </ul>
<p><u>Evaluating different pain lowering medications during intrauterine device insertion: a systematic review and network meta-analysis.</u> <sup>(10)</sup></p>	<ul style="list-style-type: none"> <li>• Electronic search in the following bibliographic databases: Medline via PubMed, SCOPUS, Web of Science, Cochrane Central Register of Controlled Trials (CENTRAL), and ScienceDirect.</li> </ul>	<p>-Lidocaine-prilocaine cream is the most effective method to reduce IUD insertion-related pain. -Other medications were not effective at lowering pain during IUD insertion.</p>	<ul style="list-style-type: none"> <li>• Network meta-analysis showed that lidocaine-prilocaine cream (genital mucosal application) statistically significantly reduced pain at tenaculum placement compared with placebo (mean difference - 2.38; 95% confidence interval, - 4.07 to - 0.68)</li> </ul>



<p><u>Pain Management for Gynecologic Procedures in the Office</u> <sup>(11)</sup></p>	<ul style="list-style-type: none"> <li>• A search of published literature using PubMed was conducted using the following keywords: "pain" or "anesthesia." These terms were paired with the following keywords: "intrauterine device" or "IUD," "endometrial biopsy," "uterine aspiration" or "abortion," "colposcopy" or "loop electrosurgical excisional procedure" or "LEEP," "hysteroscopy" or "hysteroscopic sterilization." The search was conducted through July 2015. Articles were hand reviewed and selected by the authors for study quality. Meta-analyses and randomized controlled trials were prioritized.</li> </ul>	<p>-a multimodal approach (oral medication, a dedicated emotional support person, and visual or auditory distraction, may be more effective than local anesthesia. -nulliparous, postmenopausal, history of dysmenorrhea or anxiety are more likely to experience greater pain with gynecologic procedures.</p>	<ul style="list-style-type: none"> <li>• The search was conducted through July 2015. Articles were hand reviewed and selected by the authors for study quality. Meta-analyses and randomized controlled trials were prioritized.</li> </ul>
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<p><u>Paracervical local anaesthesia for cervical dilatation and uterine intervention</u> (12)</p>	<ul style="list-style-type: none"> <li>• Search included randomized or controlled clinical studies involving women who underwent cervical dilatation and uterine intervention for obstetrics and gynaecological conditions.</li> <li>• Search included studies which compared paracervical anaesthesia with no treatment, placebo, other methods of regional anaesthesia, systemic sedation and analgesia, or general anaesthesia.</li> <li>• Two authors independently evaluated the studies, extracted data, and checked and entered data into Review Manager.</li> </ul>	<p>- no technique provided reliable pain control in the 26 included studies. Some studies reported that women experienced severe pain (mean scores of 7 to 9 out of 10) during uterine intervention, irrespective of the analgesic technique used.</p> <p>- the available evidence fails to show whether paracervical block is inferior, equivalent, or superior to alternative analgesic techniques in terms of efficacy and safety for women undergoing cervical dilatation and uterine interventions.</p>	<ul style="list-style-type: none"> <li>• Nine new studies, in total 26 studies with 28 comparisons and involving 2790 participants.</li> <li>• Paracervical local anaesthetic (PLA) reduced pain on cervical dilatation with a standardized mean difference (SMD) of 0.37 (95% CI 0.17 to 0.58) and a relative risk (RR) of severe pain of 0.16 (95% CI 0.06 to 0.74).</li> <li>• PLA also reduced abdominal pain during, but not after, uterine intervention (SMD 0.74, 95% CI 0.28 to 1.19)</li> </ul>
<p><u>Pain relief for women with cervical intraepithelial neoplasia</u></p>	<ul style="list-style-type: none"> <li>• Searched the Cochrane Gynaecological Cancer Review Group Specialised Register, Cochrane Central Register of Controlled</li> </ul>	<p>- Based on two small trials, there was no significant difference in</p>	<ul style="list-style-type: none"> <li>• 129 women; MD -3.51; 95% CI - 10.03 to 3.01</li> </ul>

<p><u>undergoing colposcopy treatment</u> <sup>(13)</sup></p>	<p>Trials (CENTRAL - May 2011) (2011, Issue 2), MEDLINE (1950 to May week 2, 2011), EMBASE (1980 to week 20, 2011) for studies of any design relating to analgesia for colposcopic management.</p> <ul style="list-style-type: none"> <li>• Searched registers of clinical trials, abstracts of scientific meetings, reference lists of included studies and contacted experts in the field.</li> </ul>	<p>pain relief in women receiving oral analgesics compared with placebo or no treatment</p> <p>- This evidence is considered to be of a low to moderate quality. In routine clinical practice, intracervical injection of local anaesthetic with a vasoconstrictor (lignocaine plus adrenaline or prilocaine plus felypressin) appears to be the optimum analgesia for treatment.</p>	
<p><u>10% lidocaine spray for pain control during intrauterine device insertion: a randomised, double-blind, placebo-controlled trial</u> <sup>(14)</sup></p>	<ul style="list-style-type: none"> <li>• This study was a randomized, double-blind, placebo-controlled trial. Reproductive-age women were randomized at a 1:1 ratio into 10% lidocaine spray or placebo spray group. A 10 cm visual analogue scale (VAS) was used to evaluate pain during several steps of the IUD insertion procedure, and after the procedure.</li> </ul>	<ul style="list-style-type: none"> <li>- 10% lidocaine spray was found to be an effective local anaesthetic method for reducing pain during insertion of Cu-IUD.</li> <li>- women receiving 10% lidocaine spray reported significantly lower median VAS than those receiving placebo during tenaculum use</li> </ul>	<ul style="list-style-type: none"> <li>• The 10% lidocaine spray group demonstrated significantly lower median VAS immediately after IUD insertion than the placebo group (2.95 (IQR=1.00-5.63) vs 5.00 (IQR=3.35-7.00),</li> </ul>

		and uterine sounding.	respectively; p=0.002).
<u>Alleviating Pain with IUD Placement: Recent Studies and Clinical Insight</u> <sup>(15)</sup>	<ul style="list-style-type: none"> <li>This study was a literature review on available analgesic methods for pain control during IUD insertion with clinical experience of the providers performing the study.</li> </ul>	<p>-According to available published data paracervical and intracervical lidocaine blocks are effective methods in decreasing IUD insertional pain</p> <p>-Topical and vaginal lidocaine was not found to be effective in decreasing IUD insertional pain</p> <p>-Based on the literature and providers experience, the recommendation is to use a variety of modalities to decrease pain during IUD placement</p>	<ul style="list-style-type: none"> <li>Articles were reviewed and selected by the reviewers</li> <li>Qualitative data included on providers experience</li> </ul>

<p><u>Nitrous Oxide Use for Intrauterine System (IUS) Placement in Adolescents</u><sup>(16)</sup></p>	<ul style="list-style-type: none"> <li>• Prospective observational study on VAS scores in adolescents during IUS placement with Nitrous Oxide use compared to standard IUS placement in adolescents.</li> <li>• Secondary outcome measured was patients likelihood to recommend IUS to peers.</li> </ul>	<p>-Patient reported VAS scores were lower in cohort that received nitrous oxide intervention compared to standard cohort</p> <p>-Patients who received nitrous oxide prior to IUS reported higher outcome satisfaction and were more likely to recommend IUS to a peer.</p>	<ul style="list-style-type: none"> <li>• Nitrous oxide vs standard of care VAS score <math>b = -29.32\text{mm}</math>, <math>P &lt; 0.01</math></li> <li>• Patients receiving nitrous oxide were more likely to recommend IUS to peer <math>b = 0.47</math>, <math>P &lt; 0.02</math></li> </ul>
<p><u>Lidocaine for Pain Control During Intrauterine Device Insertion</u><sup>(17)</sup></p>	<ul style="list-style-type: none"> <li>• Comparison of the effects of topical lidocaine spray, cream and injection on pain experienced during IUD insertion.</li> <li>• Multiparous women of reproductive age were randomized into control, lidocaine cream, spray and injection groups.</li> <li>• Pain scores were measured immediately after analgesia administration, after tenaculum use, and after IUD insertion.</li> </ul>	<p>-Lidocaine spray was useful in reducing pain perception during tenaculum and IUD placement.</p> <p>-Lidocaine injection reduces pain during IUD insertion but is associated with higher pain scores during analgesia administration.</p>	<ul style="list-style-type: none"> <li>• Lidocaine injection group had higher pain scores at baseline (<math>P &lt; 0.001</math>).</li> <li>• Pain was lower during tenaculum use with lidocaine spray group (<math>P &lt; 0.001</math>).</li> <li>• Lidocaine spray and injection lowered pain scores during IUD placement (<math>P &lt; 0.001</math>).</li> </ul>

<p><u>Interventions for the prevention of pain associated with the placement of intrauterine contraceptives : an updated review<sup>(18)</sup></u></p>	<ul style="list-style-type: none"> <li>• A review to identify evidence on pain management strategies for IUD placement, approaches during the procedure that improve pain, and factors make certain populations higher risk for experiencing pain during the procedure.</li> </ul>	<p>-13 randomized clinical trials showed decreases in IUD insertional pain with the use of oral or local analgesia like NSAIDs or lidocaine formulations.</p> <p>-4 studies found that using procedural techniques like ultrasound guidance and balloon dilation might improve patients pain perception during the procedure.</p> <p>-Routine use of topical or local analgesia is still widely debated by providers and the need for further studies would help to form a consensus in opinion.</p>	<ul style="list-style-type: none"> <li>• This is a narrative review of the available literature published from 2012 to 2019</li> </ul>
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<p><u>Nitrous oxide for pain management during in-office hysteroscopic sterilization: a randomized controlled trial<sup>(19)</sup></u></p>	<ul style="list-style-type: none"> <li>• A double blinded randomized controlled trial of women undergoing in-office hysteroscopic sterilization and pain outcomes of intervention group compared to control group.</li> <li>• Intervention group received N2O/O2 gas via nasal mask during the procedure and pre-procedural placebo pills.</li> <li>• Control group received hydrocodone/acetaminophen and lorazepam pills pre-procedurally, and O2 gas via nasal mask intra-procedurally.</li> </ul>	<p>-N2O/O2 gas decreased pain experiences during in-office hysteroscopic sterilization when compared to oral sedation. -97% of study participants said that N2O/O2 should be offered during office-based gynecologic procedures. -86% of the patients who received the intervention said they would pay for it if it was not covered by their insurance.</p>	<ul style="list-style-type: none"> <li>• maximum procedure pain scores were 22.8±27.6 mm and 54.5±32.7 mm for intervention and control groups, respectively (p&lt;.001)</li> </ul>
<p><u>Naproxen Sodium for Pain Control with Intrauterine Device Insertion: a randomized controlled trial<sup>(20)</sup></u></p>	<ul style="list-style-type: none"> <li>• This study evaluated the pain relief benefit of using 550mg of oral naproxen sodium 1 hour prior to IUD insertion when compared to placebo.</li> <li>• Outcome measures were pain with tenaculum placement, uterine sounding, IUD insertion, and 5 and 15 minutes postinsertion.</li> </ul>	<p>-No difference was found in median VAS pain scores for primary outcome pain with IUD insertion between intervention group and control group. -There was no difference in pain score between intervention group and control group when measuring VAS scores for</p>	<ul style="list-style-type: none"> <li>• Sample size was calculated to detect 15-mm difference in VAS scores with 80% power (alpha=0.05)</li> <li>• No difference in the median VAS pain scores during IUD insertion (69mm vs 66mm, P=0.89)</li> </ul>

		<p>tenaculum placement or uterine sounding.</p> <p>-Median pain scores after IUD insertion at 5 and 15 minute intervals were lower in the intervention group than the control group.</p>	<ul style="list-style-type: none"><li>• No difference in median VAS pain scores with tenaculum placement (37mm vs 32mm, P=0.97)</li><li>• No difference in median VAS pain scores with uterine sounding (60mm vs 58mm, P=0.66)</li><li>• Median pain scores post-procedure were lower at 5 minutes (17mm vs 26mm P=0.01) and 15 minutes (13mm vs 24mm P=0.01)</li></ul>
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<p><u>Misoprostol for intrauterine device insertion in nulliparous women: a randomized controlled trial<sup>(21)</sup></u></p>	<ul style="list-style-type: none"> <li>• A randomized controlled double-blinded trial in nulliparous women undergoing IUD insertion studying the effects of misoprostol use prior to procedure.</li> <li>• Patients in intervention group were given 400 mcg of buccal misoprostol 2-8 hours before IUD insertion. Patients in control group were given buccal placebo in the same timeframe.</li> </ul>	<p>-Nulliparous women who received Misoprostol did not have a decrease in pain with IUD insertion, and the medication did not increase the ease of the procedure.</p>	<ul style="list-style-type: none"> <li>• No difference between groups in insertion pain (<math>5.8 \pm 2.0</math> vs <math>5.9 \pm 2.0</math>, <math>P = .94</math>), provider ease of insertion (<math>2.2 \pm 2.2</math> vs <math>2.5 \pm 2.2</math>; <math>P = .54</math>) or adjunctive measures (14% vs 25%; <math>P = .27</math>)</li> </ul>
<p><u>Self-administered vaginal lidocaine gel for pain management with intrauterine device insertion: a blinded, randomized controlled trial<sup>(22)</sup></u></p>	<ul style="list-style-type: none"> <li>• Assess pain control during IUD insertion after patient-administered lidocaine gel compared with placebo.</li> <li>• Randomized, blinded trial of patients undergoing IUD insertion where participants self-administered 20cc of lidocaine gel or placebo gel in the vaginal 15 minutes before IUD insertion.</li> </ul>	<p>-Self-administered lidocaine gel before IUD insertion did not reduce pain compared to placebo gel. -92% of participants said they would be willing to wait longer than 15 minutes before IUD placement for possible analgesic effect.</p>	<ul style="list-style-type: none"> <li>• Median pain scores during IUD insertion were not significantly different (65mm vs 59mm <math>P=0.09</math>).</li> <li>• Median pain scores at speculum insertion were significantly different between groups (7mm vs 11mm, <math>P=0.046</math>).</li> </ul>

<p><u>Use of naproxen versus intracervical block for pain control during the 52-mg levonorgestrel-releasing intrauterine system insertion in young women: a multivariate analysis of a randomized controlled trial<sup>(23)</sup></u></p>	<ul style="list-style-type: none"> <li>• This study was done to compare effectiveness of 550mg naproxen sodium versus 6mL 2%-lidocaine intracervical block in decreasing pain during placement of 52mg levonorgestrel-releasing intrauterine system.</li> <li>• Primary outcome was pain at insertion of IUS.</li> <li>• Secondary outcome was ease of insertion, insertion failures, and correct IUS position.</li> <li>• This trial was not blinded.</li> </ul>	<p>-Lidocaine intracervical block was more effective in reducing VAS pain scores during IUS insertion.          -The insertion was performed without difficulty in 82% of participants.          -Study found that all malpositioned IUS were placed by resident physicians.</p>	<ul style="list-style-type: none"> <li>• lidocaine intracervical block presented lower mean pain score at insertion, when compared to women who received naproxen (5.4 vs. 7.3, respectively; <math>p &lt; 0.001</math>)</li> <li>• Parous women had a 90.1% lower chance of experiencing severe pain (<math>p = 0.004</math>)</li> </ul>
<p><u>Prophylactic ibuprofen does not improve pain with IUD insertion: a randomized trial<sup>(24)</sup></u></p>	<ul style="list-style-type: none"> <li>• Randomized, double-blinded, placebo control trial of participants taking 800mg of ibuprofen prior to IUD insertion.</li> <li>• All study participants underwent IUD insertion about 2-6 weeks after a first-trimester uterine aspiration.</li> <li>• Participants were randomized to receive either ibuprofen 800mg or placebo 30-45 minutes prior to insertion procedure.</li> </ul>	<p>-Administration of 800mg of ibuprofen prior to IUD insertion did not decrease pain associated with the procedure.          -Pain scores were not different regardless of age or parity.</p>	<ul style="list-style-type: none"> <li>• Median pain scores between intervention and control group during IUD insertion (38.0mm vs 41.5mm <math>P=0.50</math>)</li> </ul>

<p><u>Effect of cervical lidocaine-prilocaine cream on pain perception during copper T380A intrauterine device insertion among parous women: a randomized double-blind controlled trial<sup>(25)</sup></u></p>	<ul style="list-style-type: none"> <li>• This randomized, double-blinded, placebo-controlled study investigated the analgesic effect of cervical lidocaine-prilocaine cream in lowering pain scores during copper T380A IUD insertion in parous women.</li> <li>• Intervention or control cream was inserted 7 minutes prior to IUS insertion. Study end-points measured were VAS scores with tenaculum placement, sound insertion, IUD insertion, and 5 minutes after the procedure.</li> </ul>	<p>-Lidocaine-prilocaine cream reduces the median VAS scores with tenaculum placement, sound insertion, and IUD insertion. -There was more ease of insertion with intervention group.</p>	<ul style="list-style-type: none"> <li>• Tenaculum placement VAS scores were lower in intervention group (2 vs 4 p=0.0001)</li> <li>• Intervention group reported lower VAS scores with sound insertion (3 vs 6, p=0.0001) and IUD insertion (3 vs 6.5, p=0.0001)</li> </ul>
<p><u>Benefits of self-administered vaginal Dinoprostone 12 hours before levonorgestrel-releasing intrauterine device insertion in nulliparous adolescents and young women: a randomized controlled trial<sup>(26)</sup></u></p>	<ul style="list-style-type: none"> <li>• Assessment of safety and efficacy of self-administered vaginal dinoprostone 12 hour prior to levonorgestrel IUD insertion in nulliparous women.</li> <li>• This study was a randomized control trial studying nulliparous women ages 18-22.</li> <li>• Primary outcome was VAS pain score during IUD insertion between the two groups.</li> <li>• Secondary outcomes were pain scores with speculum and tenaculum placement, uterine sounding, 20 minutes post-procedure pain, ease of insertion, and patients' satisfaction score.</li> </ul>	<p>-Self-inserted 3 mg dinoprostone 12 hours prior to L NG-IUD insertion in nulliparous women lowered VAS pain scores during procedure and increased patient satisfaction and ease of insertion by clinician.</p>	<ul style="list-style-type: none"> <li>• The intervention group has significantly lower VAS scores during IUD insertion (2.83 ± 1.08 vs 3.95 ± 1.63), tenaculum placement (2.97 ± 1.41 vs 4.55 ± 1.53) and sounding of uterus (3.55 ± 1.71 vs 5.12 ± 1.37) compared with the placebo group (P &lt; .001)</li> </ul>

			<ul style="list-style-type: none"> <li>There was no significant difference in pain scores during speculum insertion and 20 minutes after procedure (P=0.53)</li> </ul>
<p><u>Higher dose cervical 2% lidocaine gel for IUD insertion: a randomized controlled trial<sup>(27)</sup></u></p>	<ul style="list-style-type: none"> <li>This randomized double-blind placebo controlled study was conducted to determine the efficacy of 6mL of 2% lidocaine cervical gel for analgesia during IUD insertion in first-time IUD users.</li> </ul>	<p>-2% lidocaine gel placed on the anterior lip and internal os of the cervix did not reduce pain scores during tenaculum placement and IUD insertion compared to control group in first time IUD users.</p>	<ul style="list-style-type: none"> <li>The intervention group had mean pain score with tenaculum placement of 37.5 compared to control group of 41.5 (p=0.4)</li> <li>Pain with IUD insertion in intervention group was 35.2 compared to control group 36.7 (p=0.8)</li> </ul>

**Table 1: Aim 1- Studied of perceived benefit to patient with various analgesia methods during office-based gynecologic procedures.**

- Of 23 papers that examined different analgesia techniques to improve pain experiences by individuals undergoing office-based intrauterine, 10 papers claimed that there are interventions that reduce pain scores in patients undergoing these procedures.

- The interventions tried that showed benefit were paracervical lidocaine injections, topical anesthetic gels and creams, and multimodal approaches that included injection analgesia, oral NSAIDs, anti-anxiolytic medications, and an emotional support person.
- 11 papers concluded that their studied intervention did not significantly reduce pain scores in patients undergoing intrauterine procedures in the office.
- 2 papers were older literature reviews on pain control methods to decrease pain scores in patients undergoing IUD placement. 1 meta-analysis concluded that only paracervical lidocaine reduced pain experienced by patients, and the other meta-analysis concluded that only lidocaine-prilocaine cream improved pain experienced by patients.

Article	Method	Findings	Significance
<p><u>Method of local anesthesia for IUD insertion</u> <sup>(28)</sup></p>	<ul style="list-style-type: none"> <li>• One provider's experience with paracervical and intracervical block for first trimester suction aspiration abortion and endometrial biopsy</li> <li>• the author has used intracervical block with 8-10 cm of 1% xylocaine for all IUD insertions, unless requested by the patient not to do so.</li> </ul>	<p>- The advantages of using a local anesthetic are as follows: 1) minimal discomfort felt during insertion; 2) postinsertion cramping is eliminated or greatly reduced; 3) elimination of cervical shock or vasovagal reaction during or just after insertion; 4) maximal patient cooperation allowing easier attainment of absolute no touch technique and ensuring correct placement of the device; 5) reduction in recovery and resting time following insertion; and 6) a positive influence on patient</p>	<ul style="list-style-type: none"> <li>• qualitative study</li> </ul> <p><b>This is not a controlled trial and is just the experience of one physician.</b></p>

		acceptance of the device due to pain-free insertion.	
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**Table 2: Aim 2- Perceived benefit to provider with analgesia use during IUD insertion.**

- There were minimal studies available that solely focused on ease of procedure for provider with analgesia use in office-based procedures.
- The study on patient administered dinoprostone showed an increase in ease of IUD insertion by provider as a secondary outcome<sup>(26)</sup>.
- The study on lidocaine-prilocaine cream use to decrease pain during IUD insertion showed a secondary outcome of increased ease of insertion for provider<sup>(25)</sup>.
- Misoprostol use was not found to increase ease of IUD insertion for providers in nulliparous patients<sup>(21)</sup>.

Article	Method	Findings	Significance
<u>Physicians' perceptions of shared decision-making behaviors: a qualitative study demonstrating the continued chasm between aspirations and clinical practice</u> <sup>(29)</sup>	<ul style="list-style-type: none"> <li>• Semi-structured qualitative interviews were conducted with physicians in five practice areas.</li> <li>• This study was conducted at an academic medical center in St. Louis, MO. The final sample included 20 physicians: five surgeons, five OB/GYNs, four medical oncologists, five internists and one emergency medicine physician.</li> </ul>	<ul style="list-style-type: none"> <li>- Although a large number of participants expressed general support for incorporating SDM into practice, most held fundamentally inconsistent beliefs about practicing specific SDM behaviors.</li> <li>-more extensive training and integration of SDM into institutional framework would likely increase the motivation to practice SDM.</li> <li>-physicians underestimate the level at which patients would like to be involved in decision making</li> </ul>	<ul style="list-style-type: none"> <li>• qualitative study</li> </ul>

		<p>regarding health decisions and cite a lack of time to engage in lengthy discussion as primary reasons they do not attempt SDM.</p> <p>-core component of SDM is eliciting patient values and preferences for different treatment options. When patients disagree with a treatment recommendation, it can be the result of an inconsistency between their preferences and physicians' perceptions of these preferences</p>	
<p><u>Satisfaction in parturients receiving epidural analgesia after prenatal shared decision-making intervention: a prospective, before-and-after cohort study</u><sup>(30)</sup>.</p>	<ul style="list-style-type: none"> <li>• Shared decision making parturient health education and leaflet with quick response codes were provided at 28-weeks gestation</li> <li>• Education clips discussed epidural anesthesia risks and benefits</li> <li>• Original routine practice group parturient received explanation of analgesia after admission for delivery.</li> <li>• Provided a questionnaire with</li> </ul>	<p>- An earlier prenatal SDM intervention with sufficient information through videoclips increased parturients' comprehensions and satisfaction of epidural analgesia service.</p> <p>-SDM group reported significantly higher satisfaction with and understanding of epidural anesthesia, higher satisfaction with information and quality of pain relief</p>	<ul style="list-style-type: none"> <li>• After SDM intervention, significant increase of the average satisfaction scores in question "my epidural is effective" (9.10%; mean difference: 0.38; 95% confidence interval, 0.17 ~ 0.59; p &lt; 0.001)</li> <li>• "The effect of epidural is just as what I have expected"</li> </ul>

	<p>reference to (1) Pregnancy and Maternity Care Patients' Experiences Questionnaire (PreMaPEQ), (2) Preterm Birth Experience and Satisfaction Scale (P-BESS), and (3) Women's Views of Birth Labor Satisfaction Questionnaire (WOMBLSQ).</p>		<p>(10.41%; mean difference: 0.41; 95% confidence interval, 0.18 ~ 0.64; <math>p &lt; 0.001</math>) was demonstrated.</p>
<p><u>Shared decision-making and decision support: their role in obstetrics and gynecology</u> <sup>(31)</sup></p>	<ul style="list-style-type: none"> <li>• 155 studies included in a 2014 Cochrane review of decision aids</li> </ul>	<ul style="list-style-type: none"> <li>- the majority did not show evidence of an effect on treatment choice, there was a greater uptake of mammography in selected groups of women exposed to decision aids compared with usual care</li> <li>- a statistically significant reduction in the uptake of hormone replacement therapy among detailed decision aid users compared with simple decision aid users.</li> <li>- Studies also found an effect on patient-centered outcomes of care, such as medication adherence, quality-of-life measures, and anxiety scores</li> </ul>	



		<p>- In maternity care, only decision analysis tools affected final treatment choice, and patient-directed aids yielded no difference in planned mode of birth after cesarean.</p>	
<p><u>Patient Decision Aids to Facilitate Shared Decision Making in Obstetrics and Gynecology: A Systematic Review and Meta-analysis</u> (32)</p>	<ul style="list-style-type: none"> <li>• Searched ClinicalTrials.gov, MEDLINE, CENTRAL, Cochrane Gynecology and Fertility specialized register, CINAHL, and EMBASE from 1946 to July 2019.</li> <li>• Selected 35 randomized controlled trials comparing patient decision aids with usual clinical practice or a control intervention.</li> </ul>	<p>-patients decision aids evaluated for contraception, vaginal birth after c-section, and pelvic organ prolapse and demonstrated reduction in decisional conflict and improvement in patient knowledge</p> <p>-there was no difference in patient anxiety or satisfaction</p>	<ul style="list-style-type: none"> <li>• the use of patient decision aids reduced decisional conflict (standardized mean difference - 0.23; 95% CI -0.36, to - 0.11; 19 trials; 4,624 women) and improved patient knowledge (standardized mean difference 0.58; 95% CI 0.44 to 0.71</li> <li>• no difference in patient anxiety (standardized mean difference - 0.04; 95% CI -0.14 to 0.06; 12 trials; 2,714 women) or satisfaction (standardized mean difference</li> </ul>

			0.17; 95% CI 0.09 to 0.24; 6 trials; 2,718 women).
<u>Shared decision making in contraceptive counseling</u> <sup>(33)</sup>	<ul style="list-style-type: none"> <li>used data from the Patient-Provider Communication about Contraception study</li> <li>Analysis was conducted using chi-squared tests and multivariate mixed effects logistic regression, with a random effect model used to account for clustering by provider.</li> </ul>	<p>-Women reporting SDM were more likely to be satisfied with counseling than those reporting a provider-driven decision and were more likely to be satisfied with their method than those reporting a patient-driven decision</p> <p>-SMD in contraceptive counseling is associated with patient satisfaction</p>	<ul style="list-style-type: none"> <li>345 participants from the practices of 38 providers contributed data for this analysis.</li> <li>only variable associated with what type of decision making occurred was having seen the provider previously (40% reported patient-driven decisions, 56% shared decision making, and 4% provider-driven decisions, compared to 50%, 41% and 8% for those who had not seen the provider before, p=0.04)</li> <li>Younger patient age was associated with being more likely to report that the</li> </ul>

			<p>provider had a preference in bivariate analysis (70% for those 16–20, decreasing to 49% in those greater than 35, <math>p=.02</math> for overall comparison) with a significant difference between the youngest and the oldest groups in multivariate analysis (aOR 0.31, <math>p=0.043</math> for patients &gt;35 compared to those 16–20)</p>
<p><u>TikTok, #IUD, and User Experience With Intrauterine Devices Reported on Social Media</u> (34)</p>	<ul style="list-style-type: none"> <li>The top 100 videos tagged "#IUD" were compiled using a web-scraping application. User demographics and video content were analyzed by two independent reviewers, with a third to arbitrate differences.</li> </ul>	<p>-More videos had a negative tone (37.8%) about intrauterine devices (IUDs) than positive (19.4%), and 27.6% mentioned distrust of health care professionals. -Of videos conveying patient experiences, all had a negative or ambiguous tone and 96.8% highlighted pain and other side effects related to IUDs. -Videos scored low on information</p>	

		health quality (1.2/5 on DISCERN) and averaged 73.8% in understandability and 17.7% in actionability on PEMAT (Patient Education Materials Assessment Tool)	
<u>Social media and the intrauterine device: a YouTube content analysis</u> <sup>(35)</sup>	<ul style="list-style-type: none"> <li>• Searched YouTube for videos about individual uploaders' IUD experiences, using the search terms 'intrauterine device', 'IUD', 'Mirena' and 'Paragard'.</li> <li>• Excluded professional and instructional videos belonging to commercial or non-profit entities.</li> <li>• Two reviewers independently analysed the videos using a structured guide, with attention to inaccurate information.</li> </ul>	<ul style="list-style-type: none"> <li>- Most described placement of the LNG-IUS (65%), were posted within 1 month of insertion (45%), and mentioned side effects (66%) - bleeding, pain, and partner sensation of the strings.</li> <li>- About one-third of videos contained inaccurate information (34%) and were thought to project an overall negative experience (30%).</li> <li>- Videos portraying IUDs negatively were associated with inaccurate information and/or mention of side effects.</li> </ul>	<ul style="list-style-type: none"> <li>• Of 86 identified videos, four videos featured clinicians and were excluded; 62 met inclusion criteria.</li> <li>• Interrater agreement on IUD portrayal was good (K=0.73).</li> </ul>

**Table 3: Aim 3- Impact of shared decision making practices and patient created content on social media on patient-provider relationship.**

- Of the 4 papers found on shared decision making involving obstetrical or gynecological concerns, all of them found that implementing shared decision making improved patients' attitudes and satisfaction with the care provided.
- Both papers found on gynecologic information on social media platforms surrounding IUD insertion showed that the majority of content available has a negative tone and emphasizes the pain of the procedure.

## **Discussion:**

A common conclusion when it comes to the use of analgesia for in-office gynecologic procedures is that, of the methods studied, there is no significant difference in pain scores between patients who receive interventions, and the ones that do not. Pain is subjective to the individual and hard to objectively measure. Although there have been some studies done to find the effective methods for pain control during intrauterine or cervical procedures, there is overall a paucity of conclusive literature on the subject. Additionally, the existing literature seems to contradict itself from one study to the next, which can lead to confusion for providers when deciding if there is enough evidence to support analgesia use during certain gynecologic procedures.

Of the papers that fit the literature search criteria, the methods for pain control most attempted were local lidocaine injections in the cervix or paracervical region, topical numbing agents, and oral analgesia like nonsteroidal anti-inflammatory medications. Even between studies using the same methods, their results are often subject to the patient population they examined, and the results tend to differ. An example of this incongruent data is the study on cervical lidocaine for IUD insertional pain where half the study participants were given 2% topical lidocaine gel and the other half were given placebo. The study found there was no significant difference in pain between groups. However, in the systematic review paper examining different pain medications for IUD insertion, and the study of 10% lidocaine spray for pain control during copper IUD insertion, both claim that the topical agents being studied significantly improved patients' pain scores during the procedure.

In the systematic review paper, lidocaine-prilocaine cream was shown to significantly improve pain with tenaculum use and IUD insertion. In the study on 10% lidocaine spray, 124 women were divided into 2 groups; one received 10% lidocaine spray 3 minutes prior to start of procedure, and the other group receive placebo spray. The results showed that lidocaine spray significantly reduced VAS scores for tenaculum placement, uterine sounding, and IUD insertion when compared to the placebo group. The study included women who had a BMI less than 30 kg/m<sup>2</sup> who had never had a copper IUD before. A limitation to this study could be that the lidocaine spray was only tested with the copper IUD, but since there is a minimal size discrepancy between the copper and hormonal IUD, with the copper IUD being slightly larger, it should not affect the validity of the results.

Of the 23 papers that fit the research criteria looking at analgesia use for IUD insertions or cervical and uterine office-based procedures, eight of them examined the use of topical gels, creams, and sprays. Of the eight papers that included studied the effects of these drugs, four of them showed that these interventions provided a benefit to the patients in reducing their pain scores during the given procedure. The other four papers claimed that topical analgesia gels, creams, and sprays did not significantly reduce pain scores in patients undergoing office-based gynecologic procedures. Without conclusive support for the use of topical agents like creams or sprays, the consensus is that it might not be a reliable form of analgesia to use during IUD insertion. Although the evidence is not conclusive, providers should consider the risk-benefit analysis. Gel, cream, and spray formulations of lidocaine are relatively inexpensive and easy to apply. Some studies even allowed patients to self-administer the analgesic agent which could cut down on clinic time needed to allow the anesthetic effects to take place. With formulations like these available, and some studies that endorse the analgesic benefits of them during IUD insertion, what are the harms in offering these methods to patients? These methods don't require injectable medications, they're short acting, and they are readily available. If patients are properly counselled on the benefits and risks, including the possibility that the analgesic might not have the desired effect or that it might not be covered by their health insurance provider, it seems reasonable to allow them to assist in the decision making process.

This incongruence in the literature about what pain control methods do and do not work for these types of procedures is common when searching for answers on this subject. Injectable analgesia has provided mixed results on efficacy with reducing pain during IUD insertion. The randomized trials performed by the same group seem in Table 1 that looked at the effects of lidocaine paracervical block on pain for IUD insertion yielded different results. The first of their two studies examined the effect of 10 cc injection of 1% lidocaine paracervically before IUD insertion. The patients' pain was rated on a VAS scale and compared to the VAS rating from patients who did not receive any local anesthesia. Although the mean VAS for the group that received local anesthesia was 24.0 mm compared to the group without anesthesia which measured 62.0 mm, there was no statistically significant difference in these findings. The study was repeated, but this time using 20cc of buffered 1% lidocaine paracervical injections prior to IUD insertion compared to no local analgesia. The results of this study showed decreased VAS pain scores for uterine sounding, IUD insertion, and post-insertion pain compared to the group

that did not receive local. If a provider was searching for an answer on the efficacy of paracervical block for IUD insertion and only read the results on the first paper but did not see that the researchers repeated the study after increasing the dose of lidocaine might make the conclusion that paracervical blocks do not provide a pain relief benefit during IUD placement, and therefore, not recommend them to their patients.

Other studies on paracervical and intracervical blocks are divided on the benefit of them in providing pain relief during intrauterine procedures performed in the office. Of the five papers available on intracervical and paracervical block for pain control during IUD insertion, four of the papers endorse some benefit in patient reported pain scores with injectable analgesia use. Common concerns of providers surrounding intracervical or paracervical lidocaine injections for IUD insertion pain relief is that the injections themselves can cause pain to the patient. Other concerns with the use of paracervical lidocaine injections is that they might cause a delay in care times due to the need to wait for analgesic effect to take place after injected by the provider. Patients might also experience more discomfort with the injection than they would with the IUD insertion itself, or experience discomfort with continued speculum placement while waiting for analgesic effect. Although a paracervical or intracervical block might include more risks for the patient compared to lidocaine creams or gels, it is still reasonable to counsel patients on what the benefits and risks of using injectable lidocaine for pain relief and allowing them to assist in the decision making.

The use of anti-inflammatory medications like oral NSAIDs or vaginal dinopristone have also been examined for their role in decreasing patient pain during IUD insertion. As demonstrated in the studies in Table 1, five studies evaluated the effect of NSAIDs on reducing pain during IUD insertion, but only one study showed pain reduction during the procedure. The rest of the studies did not show reduction of pain during the procedure, but there was a pain relief benefit after IUD insertion with the use of oral analgesics. Vaginal dinopristone was shown to improve pain during IUD insertion. The use of NSAIDs can be beneficial in post-procedural pain, so the studies typically suggested providers schedule NSAID use 24 to 48 hours prior to IUD insertion to maximize the benefit during the procedure.

Another source of potential confusion for providers could arrive from the amount of review literature available that definitively states one method of analgesia is preferable to another, but the definitive results are incongruent from one paper to the next. An example of this is easily

seen in Table 1 where one review paper states that only paracervical block is effective in controlling patient pain for IUD insertions, but another review states that lidocaine-prilocaine cream was the only effective method for analgesia, and the other methods were not effective in controlling pain during IUD insertion. One study suggests that a combination of several methods, including oral NSAIDs, emotional support and distraction, and possible use of local anesthesia would most effectively provide pain relief, but others suggest that Ketorolac and paracervical injections do not significantly reduce patients' pain during cervical or intrauterine procedures. With all these conflicting reports, it is no wonder providers simply default to the conclusion that there is no significant data to suggest that analgesia use during office-based gynecology procedures provides benefit to patients.

While health care providers are trained to approach questions in an evidence-based manner, and the evidence to support analgesia use during gynecologic office procedures is inconclusive at best, there is a larger, social question being raised. Over the past several years, particularly with the rise in popularity of social media platforms like Instagram, YouTube, and TikTok, there have been more patients taking to the internet to share their experience with office-based gynecological procedures like colposcopy and IUD placement. Most of this content, as exhibited in Table 3 depict overtly negative IUD experiences. In one study, 37.8% of videos had a negative tone and 96.8% of videos highlighted the pain and side effects of IUD insertion. Another study showed negative perceptions of IUD were associated with higher rates of inaccurate medical information, but whether the information provided is medically sound or just based on personal experience, it still can have an impact on the patients who turn to social media for information on medical procedures they are considering having done. The aforementioned paper noted 27.6% of videos expressed a distrust of health care professionals. Although providers are not going to let their practice habits be determined by social media metrics, it is worth mentioning fear of pain may prevent several people who would benefit from getting an IUD from pursuing it.

Additionally, videos similar to the ones concerning IUD placement about procedures like colposcopy or endometrial biopsy are available on social media and may discourage people who need these important screening tests from getting them.

With the lack of conclusive support for analgesia use during in-office gynecologic procedures, looking at the available data on shared decision making practices can help to guide providers in their practice. As mentioned in Table 3, there are four papers that highlight the benefit of using



shared decision making techniques with patients when making medical plans. One study examined patients' perceptions and satisfaction with epidural anesthesia during labor when they were provided with decision making aids early in pregnancy versus patients who received epidural anesthesia without early counselling. The patients who had early discussion with their provider and decision making aids reported higher satisfaction and understanding of epidural anesthesia than the control group. Another study on shared decision making with contraception counselling looked at patient attitudes and satisfaction with the selected method when given decision making aids versus patient who had a provider selected method of contraception. Patients who took part in shared decision making with their provider when selecting a method of contraception reported greater levels of understanding and satisfaction with their selected method than the other group that had a provider selected method of contraception. Since the evidence supports the use of shared decision making techniques with other obstetrical and gynecological concerns, it is reasonable to implement them in office-based gynecologic procedures. There is a petition circulating on change.org with over 35,000 signatures of people advocating for "better pain relief for IUD insertions and removals"<sup>(38)</sup>. The creator of the petition shared they polled 1500 IUD users, 43% of which rated their pain as 7 out of 10 or higher. While this is not a validated study, it is important to note that a petition with this much attention could impact the perceptions of patients interested in getting an IUD.

### **Further Directions:**

The data available on this topic of analgesia use for in-office gynecologic procedures is inconclusive, and most of the studies conclude with the declaring the need for a high-powered randomized control trial on different methods of analgesia among a diverse patient population to draw significant conclusions about its effectiveness. The reality of conducting a study of that magnitude is challenging at best, but not impossible. Additionally, in a soon-to-be-published manuscript by Nicole Friedlich, 3<sup>rd</sup> year medical student, and Dr. Shanna Combs, MD, medical providers who are members of ACOG were surveyed on their practice preferences for analgesia offered during IUD insertions. The study will help to illuminate how providers practice, the difference in beliefs for pain control, and aid in further understanding on best evidence-based practices. While provider experience cannot be negated, it is still important to conduct a control trial to ascertain the best pain control practices for these procedures.

## **Conclusion:**

Patient perceptions of pain is, by its nature, difficult to quantify and study because of its subjectivity. A common attitude of providers is that, more often than not, patients getting IUD insertions, cervical procedures, or other intrauterine procedures do not endorse significant pain that would warrant the extra time burden of analgesia use. However, in the patients who do experience severe pain, it can change their perception and trust of the medical system and dissuade them from undergoing similar procedures out of fear of pain.

Fear of pain of the procedure is one of the leading barriers to patients selecting IUDs as a form of contraception, even though they are long-lasting and highly effective at preventing pregnancy.

The current conversation on social media surrounding IUD insertions and other in-office gynecologic procedures like colposcopy and endometrial biopsy are drawing more attention to this topic. There are multiple patient stories on platforms like TikTok and YouTube that describe their negative experiences with pain during their IUD insertion, and it is highlighting the desire from the people who engage with this content that patients want better options for pain management with office-based gynecologic procedures. While the available literature on analgesia for these procedures has not provided conclusive data or support for its use, there are studies available that demonstrate its benefit. While some providers are in favor of paracervical blocks or NSAID use for IUD placement, other providers believe that the use of analgesia is more cumbersome and has not demonstrated enough efficacy to be worth the effort for patients. Additionally, insurance coverage for procedures and interventions outside of the standard of care is not always sufficient.

There are a few studies that have been conducted on analgesia use during IUD insertion and other gynecologic procedures, but the majority of them are small, single site trials that are not high powered and have not been repeated with expanded patient populations. Since there is not a definitive method established for pain control during these procedures, further blinded, randomized controlled trials need to be conducted for further analysis. Until conclusive data is established on how to provide pain relief for patients undergoing these procedures, it is important to examine the context of the conversation surrounding it.

If patients are expressing their dissatisfaction with the current standard of practice, and providers could possibly impact their experiences, what are the possible negative consequences of doing so? Common concerns are increasing amount of time needed for a procedure or ineffective

analgesia methods that would still not provide pain relief. Topical analgesia, oral NSAIDs, and injectable lidocaine are relatively low risk interventions that might provide some benefit to patients undergoing these procedures. While injectable analgesia comes with risks of pain during injection that might be worse than IUD insertion itself, shared decision making techniques can help providers navigate these choices with patients.

Shared decision making regarding analgesia for in-office gynecologic procedures could include counselling patients on the available literature on the techniques that could lower potential pain experienced during these procedures. The discussion would also need to address the possibility that the patient might not feel any pain during the procedure, and that injectable analgesia might cause more discomfort than they would feel without anesthetic. If patients express concern over the pain they might experience during IUD insertion, providing them with the options that have been shown to provide some benefit and allowing them to assist in the decision making might increase their overall satisfaction with the procedure and their relationship with the provider.

A multi-modal approach to pain control is widely accepted and practiced among several medical specialties and it might be the best approach in the case of office-based gynecologic procedures. A combination of scheduled NSAID oral medications, topical or injectable lidocaine anesthetic, and oral anti-anxiolytics could be beneficial, but needs to be further studied in a high powered controlled trial. Until further definitive data can be established on the most effective method of pain control for in-office gynecologic procedures, implementing shared decision making between patients and providers on what analgesia would be best based on patient history, preference, and available data should be exercised.

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