



### Evidence Search results

<b>Search topic:</b>	<b>Nasogastric tube insertion using lidocaine spray in adult stroke patients</b>
<b>Date requested:</b>	19 Dec 2025
<b>Date completed:</b>	08 Jan 2026
<b>Search completed by:</b>	Claire Field
<b>Number of results selected:</b>	16
<b>Time taken:</b>	10 hours

### Citing this evidence search

If you reference this search in any paper, publication or presentation, please let us know and use the following format:

Field, C, (2026). *Evidence summary: Nasogastric tube insertion using lidocaine spray in adult stroke patients*. Taunton, UK: Somerset NHS Foundation Trust Knowledge & Library Service.

### Summary of results

A variety of resources were searched to find evidence on ***Nasogastric tube insertion using lidocaine spray in adult stroke patients***.

While evidence supports the use of lidocaine for NG tube insertion for reducing pain and discomfort in general adult populations, **direct evidence in stroke patients is lacking**. Some of the evidence was older than 10 years and has been included in case of interest and to give the full picture. Evidence on children was excluded from the results but can be provided if this would be useful.

There is reasonably convincing evidence to support routine use of topical local anaesthetic (lidocaine) for NGTI in adults.

[Silva et al \(2023\)](#) carried out a review of lidocaine in the perioperative setting, stating that lidocaine modulates NMDA receptors, interfering with the transmission of pain signals and reducing central sensitization and its adaptability and efficacy in managing pain means it can be used in various medical interventions including intubations. It is metabolized by the liver, and it has an elimination half-life of 90 to 120 minutes in most patients. The efficacy of lidocaine may be compromised by the presence of inflammation. It is easily absorbed by mucous membranes and can be combined with other drugs, tailored to individual patient needs and genetic profile.

Three systematic reviews that looked at the use and effectiveness of lidocaine to alleviate the discomfort of nasogastric tube insertion found that applying lidocaine before NG tube insertion can



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**alleviate pain and discomfort by 26%** without increasing nasal bleeding or vomiting ([Lor et al, 2018](#)); could reduce patient pain and discomforts related to the procedure, and improve the first successful insertion rate ([Li & Sun, 2015](#)) and that the use of nebulized lidocaine before NGT insertion can **decrease pain by 57.7%** but there is insufficient evidence to recommend the dosage, concentration, or delivery method. ([Kuo et al, 2010](#))

Six Randomised Controlled Trials also looked at the use of lidocaine in nasogastric tube insertion, and all found positive results. [Tongyoo et al \(2024\)](#) compared the effects of Lidocaine nasal drops versus placebo drops for reducing the discomfort of this procedure in the emergency department. The pain score of the Lidocaine nasal drops group was  $1.41 \pm 0.50$  (range 1–2) and that of the control group was  $4.54 \pm 1.03$  (range 3–7) ( $p < 0.01$ ). The duration of the procedure in the Lidocaine and control groups was  $1.52 \pm 0.76$  min and  $3.38 \pm 1.36$  min, respectively ( $p < 0.01$ ). The insertion was completed successfully within the first attempt in 98% of the Lidocaine group patients, whereas two or three attempts were needed in the control group. The incidence of complications such as **vomiting, coughing, difficult breathing, and aspiration was lower** in the Lidocaine group than in the control group ( $p < 0.01$ ). [Uri et al \(2011\)](#) found that Lidocaine gel administered nasally 5 minutes before NGTI significantly **reduced pain and gagging** sensations associated with the procedure but was associated with **more difficult tube insertion compared to the use of lubricant gel**. [Chan & Lau \(2010\)](#) and [Cullen et al \(2004\)](#) also found that compared with placebo spray use, lidocaine spray use was associated with less patient discomfort, and less difficulty in nasogastric tube insertion, both difference being statistically significant: of 206 adult patients described that lidocaine spray applied to the nares and pharynx may reduce patient-described pain scores by over 75%, **cut the number of failed insertions from 85% to 10%**, and halve the number of attempts needed to successfully pass the tube. However Cullen found that **an increased frequency of epistaxis might be associated with its use**.

A study by [Pongprasobchai et al \(2007\)](#) found that **10% lidocaine spray plus 2% lidocaine jelly lubrication** was more effective in relieving patients' pain, discomfort, and resulted in higher physicians' satisfaction. There were also no additional side effects as compared to 2% lidocaine jelly lubrication alone.

A 2025 study that looked at introducing the use of local anaesthetic spray (Xylocaine) for the insertion of nasogastric tubes in emergency general surgery found that local anaesthetic spray can **improve the experience of pain, nausea and anxiety** when undergoing NGT insertion. Qualitative feedback also suggested that using Xylocaine spray improved the experience for many patients through **alleviating pain to the nose and throat**. A PGD and Clinical Guideline for its use is now underway with the aim to improve patient experience and increase compliance with this intervention. ([Sellers et al, 2025](#))

A study by [Solomon and Jurica \(2017\)](#) in a large urban emergency department where lidocaine was not being used routinely for nasogastric tube insertion found that an electronic order set combined with staff education resulted in a dramatic increase in the use of evidence-based practice for nasogastric tube insertion, **from 23% to 93%**

A study by [Farrington et al \(2015\)](#) used a **weight-based standard of practice** for administration of atomized lidocaine prior to NGT insertion for all patients and administered via a patient-specific intranasal mucosal delivery device. No patient safety or adverse drug reactions related to atomized lidocaine were identified post-implementation. Patients of all ages have benefited from





administration of weight-based intranasal atomized lidocaine to decrease pain caused by NGT insertion.

BNF, EMC & UpToDate offers the following guidance on the use of lidocaine. Lidocaine hydrochloride (lignocaine) is effectively absorbed from mucous membranes and is a useful surface anaesthetic in concentrations of up to 10%. Except for surface anaesthesia, solutions should not usually exceed 1% in strength. ([Nurse Prescribers' Formulary](#)). Xylocaine spray is **non-sterile** and therefore not recommended for use prior to procedures that require aseptic techniques. **Debilitated or elderly patients and children should be given doses commensurate with their age and physical condition.** If the dose or site of administration is likely to result in high blood levels, lidocaine, in common with other local anaesthetics, should be used with caution in the following patients who will require special attention to prevent potentially dangerous side effects: The elderly and patients in poor general health. ([EMC Healthcare Professionals SmPC](#))

Multiple randomized trials have demonstrated that 1.5 mg/kg IV of lidocaine **can suppress cough reflexes when administered 1 to 3 minutes prior to intubation** ([UpToDate Lidocaine](#))

I hope this is helpful. Please contact the Library if you would like any further information or would like to revise your search: [library@somersetft.nhs.uk](mailto:library@somersetft.nhs.uk).

We would like to capture information about the impact this evidence search has had on your practice or decision—making. We can use this to promote this service to others within the Trust and it also ensures this service continues to develop and meet the needs of everyone who uses it. Please take a few moments to complete our short [impact survey](#).



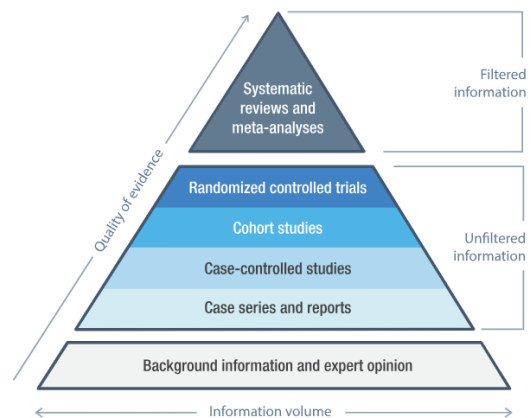


## Search results

### Full-text access:

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For your information, and to help you assess the quality of the research, here is a [hierarchy of the quality of evidence](#) that you may find useful:



## GUIDANCE

### 1. Local anaesthetics | Nurse Prescribers' Formulary | Lidocaine. BNF content published by NICE

**Item Type:** Web Page

**Authors:** BNF

**Abstract:** Read advice on Lidocaine hydrochloride (lignocaine) as a local anaesthetic for nurse prescribers.

Lidocaine hydrochloride (lignocaine) is effectively absorbed from mucous membranes and is a useful surface anaesthetic in concentrations of up to 10%. Except for surface anaesthesia, solutions should not usually exceed 1% in strength.

### 2. Lidocaine hydrochloride | Drugs | BNF content published by NICE

**Item Type:** Web Page

**Authors:** BNF

**Abstract:** View lidocaine hydrochloride information, including dose, uses, side-effects, renal impairment, pregnancy, breast feeding, contra-indications and monitoring requirements. "can damage plastic cuffs of endotracheal tubes" To mucous membranes: up to 20 doses (but only listed for Bronchoscopy, Laryngoscopy, Oesophagoscopy, Endotracheal intubation)

### 3. Xylocaine 10mg Spray – Healthcare Professionals (SmPC)

**Item Type:** Web Page

**Authors:** EMC

**Abstract:**

#### General

This product is **non-sterile** and therefore not recommended for use prior to procedures that require aseptic techniques.

#### Insertion of instruments and catheters into the respiratory and digestive tract

Provides surface anaesthesia for the oropharyngeal and tracheal areas to reduce reflex activity, attenuate haemodynamic response and to facilitate insertion of the catheter or the





passage of instruments during endotracheal intubation, laryngoscopy, bronchoscopy, oesophagoscopy and gastroscopy.

#### **4.2 Posology and method of administration**

As with any local anaesthetic, reactions and complications are best averted by employing the minimal effective dosage. Debilitated or elderly patients and children should be given doses commensurate with their age and physical condition.

#### **– Insertion of instruments and catheters into the respiratory and digestive tract**

Up to 20 applications (200 mg lidocaine base) for procedures in pharynx, larynx, and trachea.

#### **4.4 Special warnings and precautions of use**

If the dose or site of administration is likely to result in high blood levels, lidocaine, in common with other local anaesthetics, should be used with caution in the following patients who will require special attention to prevent potentially dangerous side effects:

- Patients with epilepsy.
- Patients with cardiovascular disease and heart failure.
- Patients with impaired cardiac conduction or bradycardia.
- Patients with severe renal dysfunction.
- Patients with impaired hepatic function.
- Patients in severe shock.
- The elderly and patients in poor general health.

#### **4.8 Undesirable effects**

Local irritation at the application site has been described. Following application to laryngeal mucosa before endotracheal intubation, reversible symptoms such as “sore throat”, “hoarseness” and “loss of voice” have been reported. The use of Xylocaine pump spray provides surface anaesthesia during an endotracheal procedure but does not prevent post-intubation soreness.

### **4. Pretreatment medications for rapid sequence intubation in adults for emergency medicine and critical care - UpToDate**

**Item Type:** Web Page

**Authors:** UpToDate

**Abstract:** Lidocaine — Lidocaine may attenuate the rise in airway resistance and intracranial pressure that occur during laryngoscopy and intubation. Thus, lidocaine may be used as a pretreatment agent for patients undergoing RSI who are at risk for increased airway resistance (ie, asthma) or increased intracranial pressure (eg, intracranial hemorrhage). However, available evidence suggests that lidocaine does not further reduce reactive bronchospasm in patients who have received adequate doses of a beta-2 agonist (eg, albuterol), while studies of its effectiveness for attenuating intracranial pressure increases are inconsistent.

The lidocaine dose is 1.5 mg/kg intravenously (IV), given 2 to 3 minutes before intubation. Broad clinical experience suggests that lidocaine pretreatment is safe when given in this dose. Its onset of action is 45 to 90 seconds, and its effects last for 20 minutes. Lidocaine is metabolized by the liver and excreted in the urine. If there is not sufficient time to allow for lidocaine administration 3 minutes before intubation, lidocaine can be given in a shorter interval, immediately after intubation, or not at all.





Absolute contraindications to pretreatment with lidocaine include a known lidocaine allergy and high grade heart block (Mobitz type II or third degree) in a patient without a functioning pacemaker. Lidocaine can cause cardiac arrest in the setting of a high grade heart block.

Multiple randomized trials have demonstrated that 1.5 mg/kg IV of lidocaine can suppress cough reflexes when administered 1 to 3 minutes prior to intubation [13-21]. Evidence that lidocaine reduces bronchospasm is less clear. Studies in healthy volunteers suggest that pretreatment with lidocaine mitigates bronchial reactivity induced with inhaled histamine [22-24]. However, in a small randomized trial of asthmatic patients undergoing general anaesthesia, pretreatment with lidocaine did not prevent an increase in airway resistance during intubation [25].

Although lidocaine was formerly used routinely for patients with elevated ICP, there is no high quality evidence that directly addresses whether pretreatment with lidocaine effectively reduces the rise in intracranial pressure (ICP) caused by laryngoscopy and endotracheal intubation [10,26-28]. What little evidence exists consists of small trials that have reached contradictory conclusions. Two small randomized trials found that lidocaine minimized the rise in ICP in patients undergoing neurosurgical procedures [29] or endotracheal suctioning [30]. In contrast, three other randomized trials found no benefit from pretreatment with lidocaine in blunting ICP rise during intubation [31,32] or endotracheal suctioning [33]. The largest of these trials involved 124 patients undergoing general anaesthesia and endotracheal intubation in preparation for neurosurgery [31].

Given these conflicting studies, we do not recommend that lidocaine be used as a pretreatment agent for patients with elevated intracranial pressure undergoing RSI. Patients with asthma who are undergoing RSI may benefit from a single dose of lidocaine, 1.5 mg/kg, given 3 minutes before induction, if it is not possible to give an aerosolized beta-2 agonist.

## REVIEWS

### [4.A Review of the Lidocaine in the Perioperative Period.](#)

**Item Type:** Journal Article

**Authors:** Silva A.; Mourao J. and Vale, N.

**Publication Date:** 2023

**Journal:** Journal of Personalized Medicine 13(12) (pagination), pp. Article Number: 1699.

**Date of Publication:** 01 Dec 2023

**Abstract:** This review analyzes the controversies surrounding lidocaine (LIDO), a widely recognized local anesthetic, by exploring its multifaceted effects on pain control in the perioperative setting. The article critically analyzes debates about lidocaine's efficacy, safety, and optimal administration methods. While acknowledging its well-documented analgesic attributes, the text highlights the ongoing controversies in its application. The goal is to provide clinicians with a comprehensive understanding of the current discourse, enabling informed decisions about incorporating lidocaine into perioperative protocols. On the other hand, emphasizes the common uses of lidocaine and its potential role in personalized medicine. It discusses the medication's versatility, including its application in anesthesia, chronic pain, and cardiovascular diseases. The text recognizes lidocaine's widespread use in medical practice and its ability to be combined with other drugs, showcasing its adaptability for individualized treatments. Additionally, it explores the incorporation of





lidocaine into hyaluronic acid injections and its impact on pharmacokinetics, signaling innovative approaches. The discussion centers on how lidocaine, within the realm of personalized medicine, can offer safer and more comfortable experiences for patients through tailored treatments.

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### **5. The application of lidocaine to alleviate the discomfort of nasogastric tube insertion: A systematic review and meta-analysis.**

**Item Type:** Journal Article

**Authors:** Lor, You-Chen; Shih, Pei-Ching; Chen, Hsin-Hao; Liu, Shu-Jung; Chao, Hsingchu-Chu; Hwang, Lee-Ching; Hsu, Yen-Fen and Yeh, Tzu-Lin

**Publication Date:** Feb, 2018

**Journal:** Medicine 97(5), pp. e9746

**Abstract:** **BACKGROUND:** Nasogastric (NG) tube insertion is a common procedure in the clinical setting that causes much discomfort and pain for the patient. Pain control is often suboptimal, as many NG tube insertions are performed without any pain-relieving supplements. The aim of this study was to summarize and critically evaluate the evidence from randomized controlled trials (RCTs) on the effect and adverse effects of lidocaine agents in reducing pain and discomfort associated with NG tube insertion. **METHODS:** Databases from the Cochrane Library, MEDLINE, EMBASE, Airtiti Library, PerioPath Index to Taiwan Periodical Literature, and Cumulative Index of Nursing and Allied Health (CINAHL) were searched from inception to April 2017. RCTs focusing on lidocaine before NG tube insertion were appraised. The primary outcome was the visual analog scale (VAS) score. The modified Jadad scale was used for quality assessment. Mean difference (MD) with 95% confidence intervals (95% CIs) and odds ratio (OR) for binary outcomes were assessed by a random effects model. Heterogeneity was determined by using the Cochran Q test and I statistics. Publication bias was analyzed by using a funnel plot analysis. **RESULTS:** Ten RCTs enrolling 734 patients were included in the meta-analysis. Eight of the 10 RCTs reporting VAS scores had sufficient quantitative data to be pooled through meta-analysis. Results revealed a significant reduction in VAS score, with a MD of -26.05 and a CI of -28.21 to -23.89 with moderate heterogeneity (P : Ten RCTs enrolling 734 patients were included in the meta-analysis. Eight of the 10 RCTs reporting VAS scores had sufficient quantitative data to be pooled through meta-analysis. Results revealed a significant reduction in VAS score, with a MD of -26.05 and a CI of -28.21 to -23.89 with moderate heterogeneity (P **CONCLUSION:** This meta-analysis suggests that applying lidocaine before NG tube insertion can alleviate pain and discomfort by 26% without increasing nasal bleeding or vomiting.

### **6. Effectiveness of intranasal lidocaine spray before nasogastric tube insertion: A meta-analysis.**

**Item Type:** Journal Article

**Authors:** Li W. and Sun, X. M.

**Publication Date:** 2015

**Journal:** Chinese Journal of Evidence-Based Medicine 15(3), pp. 342–345

**Abstract:** Objective To systematically review the efficacy and safety of intranasal lidocaine spray before nasogastric tube insertion. Methods We searched PubMed, EMBASE, The Cochrane Library, WanFang Data, VIP, CBM and CNKI databases concerning randomized controlled trial (RCT) of the efficacy and safety of intranasal lidocaine spray before





nasogastric tube insertion from their inception to January 2014. Two reviewers independently screened literature according to the inclusion and exclusion criteria, extracted data, and assessed methodological quality of included studies. Meta-analysis was then conducted using RevMan 5.2 software. Results Six RCTs involving 384 patients were included. The results of meta-analysis showed that there were no significant differences between the lidocaine group and the saline group in pain and discomfort scores (MD= -25.35, 95%CI -30.37 to -24.33) and first successful insertion rate (RR=1.38, 95%CI 1.21 to 1.57). Conclusion Intranasal lidocaine spray before nasogastric tube insertion could reduce patient pain and discomforts related to the procedure, and improve the first successful insertion rate.

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### **7.Reducing the pain of nasogastric tube intubation with nebulized and atomized lidocaine: a systematic review and meta-analysis.**

**Item Type:** Journal Article

**Authors:** Kuo, Ya-Wen;Yen, Miaofen;Fetzer, Susan and Lee, Jiann-Der

**Publication Date:** Oct ,2010

**Journal:** Journal of Pain & Symptom Management 40(4), pp. 613–620

**Abstract:** Nasogastric tube (NGT) intubations occur frequently in clinical practice and can be a painful procedure for patients. A systematic review of current knowledge concerning the use of nebulized lidocaine to reduce the pain of NGT insertion was conducted in order to develop evidence-based guidelines. In addition, a meta-analysis of appropriate randomized controlled trials (RCTs) was performed. The databases included PubMed (1996-2009), ProQuest (1982-2009), CINAHL (1982-2009), and the Cochrane Central Register of Controlled Trials (2009), and reference lists of articles. Experts in this field also were contacted. Two investigators selected the research based on inclusion criteria and reviewed each study's quality according to the Jadad scale. Five RCTs with 212 subjects were identified. A total of 113 (58%) subjects were women. The mean age of treatment and control groups was 59.6 and 55 years, respectively. The countries of studies were the United States, United Kingdom, Australia, Canada, and Thailand. In the treatment groups, the use of lidocaine concentration was 4% and 10%. The pooled effect size was 0.423 (95% confidence interval: 0.204-0.880; Z=-2.301; P=0.021), indicating that the use of nebulized lidocaine before NGT insertion can decrease pain by 57.7%. There is insufficient evidence to recommend the dosage, concentration, or delivery method. Further research is needed to articulate a comprehensive clinical guideline.

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### **RCTS**

### **8.Effectiveness of Lidocaine nasal drops versus placebo drops for reducing the discomfort of nasogastric tube insertion: a randomized controlled trial study**

**Item Type:** Journal Article

**Authors:** Tongyoo, Assanee;Thangthong, Tuadpong;Liwattanakun,

Aekkaphod;Sriussadaporn, Ekkapak;Limpavitayaporn, Palin and Mingmalairak, Chatchai

**Publication Date:** 2024

**Journal:** Surgery Today 54(6), pp. 591–595

**Abstract:** Purpose: Nasogastric tube (NGT) insertion can be painful and distressing for the





patient. Lidocaine nasal drops might be effective as a local anesthetic agent before the procedure. This study aimed to compare the effects of Lidocaine nasal drops versus placebo drops for reducing the discomfort of this procedure. Methods: Patients indicated for NGT insertion were categorized into two groups randomly. The Lidocaine group had 2% Lidocaine instilled nasally 3 min before the procedure and the control group had normal saline drops instilled. We compared the pain scores (using a visual analog scale) and complications between the two groups. Results: A total of 126 patients who required NGT insertion between September, 2021 and August, 2022 were enrolled in this study. The pain score of the Lidocaine nasal drops group was  $1.41 \pm 0.50$  (range 1–2) and that of the control group was  $4.54 \pm 1.03$  (range 3–7) ( $p < 0.01$ ). The duration of the procedure in the Lidocaine and control groups was  $1.52 \pm 0.76$  min and  $3.38 \pm 1.36$  min, respectively ( $p < 0.01$ ). The insertion was completed successfully within the first attempt in 98% of the Lidocaine group patients, whereas two or three attempts were needed in the control group. The incidence of complications such as vomiting, coughing, difficult breathing, and aspiration was lower in the Lidocaine group than in the control group ( $p < 0.01$ ). Conclusion: Instilling Lidocaine nasal drops before NGT insertion alleviated discomfort and reduced procedure-associated complications.

### **9. Nebulized lidocaine an effective and safe topical anaesthetic agent to upper aerodigestive tract prior to nasogastric intubation: a randomized, double-blind, placebo-controlled trial**

**Item Type:** Journal Article

**Authors:** Aknbi, O. O. et al

**Publication Date:** 2016

**Journal:** Scholars Academic Journal of Biosciences (SAJB) 4(11)

**Abstract:** Abstract: Nasogastric intubation is a common painful procedure performed in emergency department that physicians rarely consider need for topical anaesthetic agent prior to the procedure. This study investigated the effectiveness and safety of nebulized Lidocaine as topical anaesthetic agent to upper aero-digestive tract prior to nasogastric tube insertion. The study prospectively randomized 78 adult patients in emergency department of a tertiary health institution with indications for nasogastric tube insertion. The study consisted of two groups, the nebulized group (NEBG) whose each nostril and oropharynx were nebulized with 1% to 4% Lidocaine and placebo group (PLAG) whose each nostrils and oropharynx were also nebulized with normal saline. The sociodemographic characteristics and the indications for Nasogastric (NG) tube insertion for the two groups were similar. The mean change in pulse rate was lower in NEBG (5.4 vs 10,  $p < 0.001$ ) as well as mean change in respiratory rate (2.6 vs 5,  $p < 0.001$ ) and both showed statistically significant difference. The mean discomfort score on VAS, mean difficulty level on likert scale, mean insertion time and failure rate were all lower in NEBG compared to the PLAG (3.4 vs 6.7,  $p < 0.001$ ), (1.3 vs 3.8  $p < 0.001$ ), (96.4 sec vs 246.90sec  $p < 0,001$ ) and (13.3% vs 46.7%  $p = 0.011$ ) respectively. The NEBG group experienced more tracheal intubation though not statistically significant (8 (20.5%) vs 3(7.7%),  $p = 0.1932$ ). We thus concluded that nebulized lidocaine is safe and effective topical anaesthetic agent to upper aero-digestive tract prior to nasogastric tube insertion, with clinical evidence and statistical significant decrease in discomfort associated with the procedure.





## **10. Lidocaine gel as an anesthetic protocol for nasogastric tube insertion in the ED**

**Item Type:** Journal Article

**Authors:** Uri, Ofir;Yosefov, Lior;Haim, Amir;Behrbalk, Eyal and Halpern, Pinchas

**Publication Date:** -05th 2011

**Journal:** The American Journal of Emergency Medicine 29(4), pp. 386–390

**Abstract:** OBJECTIVE: The aim of the study was to evaluate the efficacy of topical 2% lidocaine gel in reducing pain and discomfort associated with nasogastric tube insertion (NGTI) and compare lidocaine to ordinary lubricant gel in the ease in carrying out the procedure.

METHODS: This prospective, randomized, double-blind, placebo-controlled, convenience sample trial was conducted in the emergency department of our tertiary care university-affiliated hospital. Five milliliters of 2% lidocaine gel or placebo lubricant gel were administered nasally to alert hemodynamically stable adult patients 5 minutes before undergoing a required NGTI. The main outcome measures were overall pain, nasal pain, discomfort (eg, choking, gagging, nausea, vomiting), and difficulty in performing the procedure. Standard comparative statistical analyses were used.

RESULTS: The study cohort included 62 patients (65% males). Thirty-one patients were randomized to either lidocaine or placebo groups. Patients who received lidocaine reported significantly less intense overall pain associated with NGTI compared to those who received placebo ( $37 \pm 28$  mm vs  $51 \pm 26$  mm on 100-mm visual analog scale;  $P < .05$ ). The patients receiving lidocaine also had significantly reduced nasal pain ( $33 \pm 29$  mm vs  $48 \pm 27$  mm;  $P < .05$ ) and significantly reduced sensation of gagging ( $25 \pm 30$  mm vs  $39 \pm 24$  mm;  $P < .05$ ). However, conducting the procedure was significantly more difficult in the lidocaine group ( $2.1 \pm 0.9$  vs  $1.4 \pm 0.7$  on 5-point Likert scale;  $P < .05$ ).

CONCLUSION: Lidocaine gel administered nasally 5 minutes before NGTI significantly reduces pain and gagging sensations associated with the procedure but is associated with more difficult tube insertion compared to the use of lubricant gel.

## **11. Should lidocaine spray be used to ease nasogastric tube insertion? A double-blind, randomised controlled trial**

**Item Type:** Journal Article

**Authors:** Chan, C. P. and Lau, F. L.

**Publication Date:** -08th ,2010

**Journal:** Hong Kong Medical Journal = Xianggang Yi Xue Za Zhi 16(4), pp. 282–286

**Abstract:** OBJECTIVE: To investigate the efficacy and safety of lidocaine nasal spray before nasogastric tube insertion in an emergency department.

DESIGN: Double-blind, randomised controlled study.

SETTING: Emergency department of a major regional hospital in Hong Kong.

PATIENTS: A total of 206 adult patients, for whom nasogastric tube insertion was indicated.

MAIN OUTCOME MEASURES: Primary outcome was discomfort gauged on a visual analogue scale, and Likert scale addressing difficulty of nasogastric tube insertion.

RESULTS: Compared with placebo spray use, lidocaine spray use was associated with less patient discomfort, and less difficulty in nasogastric tube insertion, both difference being statistically significant.

CONCLUSION: Intranasal lidocaine spray before nasogastric tube insertion was safe and effective in reducing patient discomfort related to the procedure.





**[12. Comparison of the efficacy between lidocaine spray plus lidocaine jelly lubrication and lidocaine jelly lubrication alone prior to nasogastric intubation: a prospective double-blind randomized controlled study.](#)**

**Item Type:** Journal Article

**Authors:** Pongprasobchai, Supot; Jiranantakan, Thanjira; Nimmannit, Akarin and Nopmaneejumruslers, Cherdchai

**Publication Date:** Nov, 2007

**Journal:** Journal of the Medical Association of Thailand 90(Suppl 2), pp. 41–47

**Abstract:** **OBJECTIVE:** Although a common procedure, nasogastric (NG) intubation is also painful and unsatisfactory. Previous studies showed the benefits of local anesthesia in various forms over lubricant jelly alone, but they are rarely used due to their inconvenience and unavailability. The authors conducted a double-blind randomized controlled study to compare a commercial-available 10% lidocaine spray plus 2% lidocaine jelly lubrication and 2% lidocaine jelly lubrication alone prior to NG intubation. **MATERIAL AND METHOD:** Patients who fulfilled the indications for NG intubation were randomized to receive either 10% lidocaine spray or placebo (normal saline) spray to the nostril and throat prior to NG intubation. NG tubes lubricated with 2% lidocaine jelly were then inserted by experienced physicians. Physician, who sprayed, inserted the NG tubes and collected the patient's data, did not know the content of the spray, while patients were also blinded against the information of the spray. **RESULTS:** Sixty patients were included in the present study. Thirty one randomly received lidocaine spray and 29 received placebo spray. There were more female patients in the lidocaine group (65% vs. 28%,  $p=0.04$ ), but ages, indications for NG intubation, size of NG tube, and physicians' experience in the procedure were similar in both groups. Patients' discomfort after being sprayed was also similar in both groups. However during the NG intubation, the patients in the lidocaine group experienced less pain as measured by visual analog scale (23.6 +/- 16.6 vs. 43.1 +/- 31.4 mm,  $p=0.005$ ) and less discomfort (30.0 +/- 24.4 vs. 51.4 +/- 30.0 mm,  $p=0.004$ ) than the placebo group. Ninety-three percent of the patients in the lidocaine group favored the same spray for their next intubations, while 65% of the placebo group did ( $p = 0.009$ ). In addition, there was more physicians' satisfaction in the lidocaine group as measured by 5-point Likert scale ( $p=0.041$ ). Likewise, 61% of the physicians favored lidocaine spray compared to 34.5% of the placebo spray ( $p=0.038$ ). Degree of difficulty, duration of intubation, number of attempts and success rates of NG intubations were as well similar in both groups. No complications were found in the present study. **CONCLUSION:** 10% lidocaine spray plus 2% lidocaine jelly lubrication was more effective in relieving patients' pain, discomfort, and resulted in higher physicians' satisfaction. There were also no additional side effects as compared to 2% lidocaine jelly lubrication alone. Therefore, it should be recommended for routine application.

**[13. Nebulized lidocaine decreases the discomfort of nasogastric tube insertion: A randomized, double-blind trial.](#)**

**Item Type:** Journal Article

**Authors:** Cullen L.; Taylor D.; Taylor S. and Chu, K.

**Publication Date:** 2004

**Journal:** Annals of Emergency Medicine 44(2), pp. 131–137

**Abstract:** Study objective Nasogastric tube insertion is a common emergency department (ED) procedure that is associated with considerable patient discomfort. The safety and efficacy of nebulized lidocaine for upper airway anesthesia have previously been demonstrated. We determine whether nebulized lidocaine administered before nasogastric





tube insertion significantly reduces patient discomfort. Methods A double-blind, placebo-controlled, randomized clinical trial of adult patients was conducted in the EDs of 2 university hospitals. Twenty-nine participants were administered nebulized lidocaine (4 mL 10%), and 21 participants received nebulized normal saline solution. Patient discomfort was measured using a 100-mm visual analog scale. The difficulty of nasogastric tube insertion was evaluated using a 5-point Likert scale. Results There was a clinical and statistical significant difference in patient discomfort associated with the passage of the nasogastric tube between nebulized lidocaine and placebo groups (mean visual analog scale score 37.7 versus 59.3 mm, respectively; difference between group means 21.6 mm; 95% confidence interval [CI] 5.3 to 38.0 mm). There was not a detectable difference in difficulty with the passage of the nasogastric tube between the 2 groups (median 2 versus 2; median difference 0; 95% CI -1 to 1). Epistaxis occurred more frequently in the lidocaine group (17% versus 0%; difference 17%; 95% CI 3.5% to 31%). Conclusion Nebulized lidocaine decreases the discomfort of nasogastric tube insertion and should be considered before passing a nasogastric tube. An increased frequency of epistaxis, however, may be associated with its use.

## STUDIES

### [14. Introducing the Use of Local Anaesthetic Spray for the Insertion of Nasogastric Tubes in Emergency General Surgery](#)

**Item Type:** Conference Proceeding

**Authors:** Sellers A., Lenzi E. and Gull, S.

**Publication Date:** 2025

**Publication Details:** British Journal of Surgery. Conference: ASGBI Emergency General Surgery Symposium 2024. Manchester United Kingdom. 112(Supplement 1) (pp i10); Oxford University Press,

**Abstract:** Aims: Nasogastric tube (NGT) insertion is a common procedure used within Emergency General Surgery for patients who present with small bowel obstruction. As per current clinical guidelines, this is typically carried out without any analgesic agents, which has anecdotally resulted in reports of pain, nausea and distress from patients. A service improvement project was undertaken to determine if using local anaesthetic (Xylocaine) spray can also improve the patient experience of having a NGT inserted with the aim of introducing a Patient Group Directive (PGD) for its use.

**Method(s):** 46 patients were given a questionnaire prospectively asking them to rate their experience of pain, nausea/vomiting and distress/anxiety following successful insertion of NGTs. Half of the group had Xylocaine spray administered prior to insertion. They were asked to rate their experiences of pain, nausea and distress on a Likert scale of 1-5 (5 being severe), as well as provide any other feedback.

**Result(s):** When prior experience was compared to the experience where Xylocaine spray was used, fewer patients reported pain, nausea and distress at the severe end of the scale. Qualitative feedback also suggested that using Xylocaine spray improved the experience for many patients through alleviating pain to the nose and throat.

**Conclusion(s):** Local anaesthetic spray can improve the experience of pain, nausea and anxiety when undergoing NGT insertion, and numerous studies support its use. A PGD and Clinical Guideline for its use is now underway with the aim to improve patient experience and increase compliance with this intervention.





**15. Closing the Research-Practice Gap: Increasing Evidence-Based Practice for Nasogastric Tube Insertion Using Education and an Electronic Order Set.**

**Item Type:** Journal Article

**Authors:** Solomon R. and Jurica, K.

**Publication Date:** 2017

**Journal:** Journal of Emergency Nursing 43(2), pp. 133–137

**Abstract:** Patients and practitioners rate the insertion of a nasogastric tube as one of the most painful and distressing procedures performed. Research supports using lidocaine and a nasal vasoconstrictor to significantly decrease patient discomfort. The recommended medications were not being used routinely in a large urban emergency department. Methods We identified departmental barriers using a nurse survey and physician interviews. We educated the nursing and physician staff about the comfort medications for nasogastric tube insertion recommended in the literature. In collaboration with the information technology department, we created an order set for the department's computerized physician order entry system linking the order for a nasogastric tube with the recommended comfort medications. Results Six months after the educational campaign and availability of the new electronic order set, we compared the data from pre- and post-project chart reviews and found the use of literature-recommended comfort medications had increased from 23% to 93%. Implications for Practice Nurses have a professional obligation to use the most current evidence-based practice available and to advocate for adequate pain management before, during, and after painful procedures. The use of evidence-based practice has been associated with an increase in both patient and staff satisfaction, improved clinical outcomes, and greater patient safety. An electronic order set combined with staff education resulted in a dramatic increase in the use of evidence-based practice for nasogastric tube insertion.

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**16. Pain management prior to nasogastric tube placement: atomized lidocaine.**

**Item Type:** Journal Article

**Authors:** Farrington M.; Bruene D. and Wagner, M.

**Publication Date:** 2015

**Journal:** ORL-Head and Neck Nursing : Official Journal of the Society of Otorhinolaryngology and Head-Neck Nurses 33(1), pp. 8–16

**Abstract:** Nasogastric tube (NGT) insertion is often painful for patients of all ages. Randomized clinical trials in adult patients support the use of some form of topical lidocaine in reducing pain associated with NGT insertion. A review of pediatric evidence also confirms that NGT insertion is painful and provides guidance in determining lidocaine concentrations, dosages, and administration methods. The Iowa Model of Evidence-Based-Practice to Promote Quality Care provided the framework for development of a weight-based standard of practice (SOP) for administration of atomized lidocaine prior to NGT insertion for all patients. To facilitate usage, the orders for NGT placement and atomized lidocaine administration were linked in the electronic health record (EHR). Atomized lidocaine was administered via a patient-specific intranasal mucosal delivery device. Evaluation measures included pre- and post-implementation questionnaires which measured discomfort with NGT insertion in pediatric patients (0-10 scale; pre-implementation mean = 7.4; post-implementation mean = 6.5), monitoring utilization of atomized lidocaine via automated dispensing cabinet reports, soliciting comments from families and users, and monitoring





institutional patient safety (incident) and adverse drug reaction reports. No patient safety or adverse drug reactions related to atomized lidocaine were identified post-implementation. Patients of all ages have benefited from administration of weight-based intranasal atomized lidocaine to decrease pain caused by NGT insertion. Ongoing safety evaluation and research is warranted since this is the first known report in the literature describing implementation of a weight-based dosing SOP.






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Keywords/search strategy	Limits used
Embase <1974 to 2026 January 05>	
1 (Nasogastric adj3 (tube or intubation or insertion)).ab,ti. 11887	
2 ((enteral or nasogastric) adj3 (feeding or tube)).ab,ti. 24617	
3 (Nasogastric or NGT insertion or nasogastric tube intubation or feeding tube or NG tube).ab,ti. 23168	
4 exp nasogastric tube/ 21238	
5 exp small-bore nasogastric tube/ 101	
6 (Lidocaine adj3 (spray or nebuli* or atomis*OR topical)).ab,ti. 863	
7 (lidocaine or lignocaine or lidocaine hydrochloride or xylocaine).ab,ti. 45065	
8 exp lidocaine/ 104268	
9 (Stroke or cerebrovascular accident or dysphagia).ab,ti. 664139	
10 exp cerebrovascular accident/ 538220	
11 1 or 2 or 3 or 4 or 5 45545	
12 6 or 7 or 8 109172	
13 9 or 10 808087	
14 11 and 12 and 13 20	
15 11 and 12 455	
16 15 and 2015:2025.(sa_year). 299	





Databases/sources used		
<input checked="" type="checkbox"/> Pubmed	<input type="checkbox"/> HMIC	<input checked="" type="checkbox"/> BMJ Best Practice
<input checked="" type="checkbox"/> MEDLINE	<input type="checkbox"/> Social Policy & Practice	<input checked="" type="checkbox"/> UpToDate
<input checked="" type="checkbox"/> Emcare	<input checked="" type="checkbox"/> CINAHL	<input checked="" type="checkbox"/> Trip Pro
<input checked="" type="checkbox"/> Embase	<input type="checkbox"/> PsycINFO	<input checked="" type="checkbox"/> Cochrane Library
<input checked="" type="checkbox"/> Knowledge & Library Hub	<input checked="" type="checkbox"/> Google Advanced/Scholar	
<b>Other (please list):</b> Electronic Medicines Compendium (emc)		

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	<p>The Knowledge &amp; Library Service have a growing archive of completed evidence summaries on <a href="#">inSPIRE</a> – the organisation’s knowledge, research and evidence repository. You can browse the evidence summaries <a href="#">here</a>.</p> <p>The (anonymised) results of this search will only be shared in the repository if you have given your permission to do so (we ask this in the evidence search request form).</p>
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