Which Topical Agent is the Best Choice for Epistaxis?

Take Home Point: This study found that oxymetazoline was most effective in achieving hemostasis in cases of epistaxis when compared to tranexamic acid (TXA) and an epinephrine-lidocaine combination (ELC) solution.

Citation: Celik T, Altun M, Kudu E, et. al. Comparison of the efficacy of oxymetazoline, tranexamic acid, and epinephrine-lidocaine combination in the treatment of epistaxis. *Am J Emerg Med*. 2025 Feb 23:91:104-109. doi: 10.1016/j.ajem.2025.02.036

Relevance: Controlling epistaxis quickly in urgent care (UC) centers is important for minimizing patient anxiety. Uncontrolled hemorrhage can quickly become time consuming and messy. In a resource-limited UC center, it is of particular value for understanding which topical solution offers the greatest chance for rapid hemostasis.

Study Summary: This was a prospective, single-center, observational, cohort trial conducted in an emergency department (ED) of a tertiary care hospital in Turkey. The authors included adult patients who failed to achieve hemostasis during non-traumatic epistaxis after direct pressure on the nasal alae for 15 minutes. Patients received either nasal spray containing 0.05% oxymetazoline hydrochloride, 500 mg of TXA diluted in 5 mL of sterile saline, or 1 ml of 1% epinephrine (1:1000) and 1 ml of 2% lidocaine. All preparations were applied to a gauze swab and inserted directly into the nares to have a tampon effect. Hemostasis was assessed every 5 minutes and time to cessation of bleeding was noted. ENT consultation was requested for patients that had not achieved hemostasis after 30 minutes.

The authors initially included 373 patients, but 89 (23.8%) achieved hemostasis with direct pressure alone were not included in the final analysis. Among them, 40 patients were noted to have posterior bleeds and 333 anterior bleeds. Of the 284 patients analyzed, 91 patients (32%) received ELC, 96 patients (33.8%) received TXA, and 97 patients (34.2%) received oxymetazoline. Hemostasis was achieved in 69/97 patients (71%) receiving oxymetazoline, 53/96 patients (55%) receiving TXA, and 45/91 patients (49%) receiving ELC. Subgroup analysis revealed a significant difference between the oxymetazoline and the ELC group ($p = 0.002$, Cohen's $h = 0.45$, 95% CI [0.20, 0.70]). There was a significant difference between oxymetazoline and TXA groups ($p = 0.022$, Cohen's $h = 0.34$, 95% CI [0.10, 0.58]), but not between TXA and ELC groups ($p = 0.431$, Cohen's $h = 0.12$, 95% CI [−0.08, 0.32]).

Editor's Comments: The study lacked randomization and blinding. The choice of hemostatic agent used was based on physician preference. Therefore, there may be characteristics of patients in each group that were significantly different. The study was also a single site study based in a tertiary care hospital in Turkey, which limits generalizability to other setting such as UC. However, direct pressure alone was successful in nearly one-quarter of the epistaxis cases. This seems relatively high and is not reported in other studies. This may suggest a less severe cohort than typically seen in U.S. EDs, but perhaps more similar to UC centers. The rates of posterior epistaxis in this study were ~10% which is comparable to rates in previous published literature. Oxymetazoline was significantly more effective in this study than both TXA and ELC. These results contradict a 2020 study in the *Journal of Emergency Medicine* where TXA was successful in 78% of cases versus 35% efficacy seen with oxymetazoline. This contradiction suggests that prospective randomized controlled trials comparing hemostatic agents would be of great value in settling this debate. In light of this state of contradictory evidence, the most salient finding from this study is that application of direct pressure remains sound advice as an initial maneuver. Beyond this, until higher quality evidence (ideally among an UC population exists), it's reasonable to use which ever hemostatic agent (or combination of agents) is most immediately available. ■

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Could Probiotics be the Long Sought after Cure for the Common Cold?

Take Home Point: This study found that children with viral upper respiratory tract infections (URI) who were given probiotics had a significantly shorter duration of fever compared to controls.

Citation: Bettocchi S, Comotti A, Elli M, et. al. Probiotics and Fever Duration in Children with Upper Respiratory Tract Infections: A Randomized Clinical Trial. *JAMA Netw Open*. 2025 Mar 3;8(3):e250669. doi: 10.1001/jamanetworkopen.2025.0669.

Relevance: URIs are ubiquitous in children with most children suffering from multiple viral URIs per year. No treatments to date have proven to meaningfully affect the duration of URI symptoms in children. Antibiotics, specifically, have been shown repeatedly to be ineffective for shortening the duration of URI symptoms.

"It seems reasonable to suggest probiotics as a solution to help children with URIs feel better faster when parents are grasping for any reasonable treatment option."

Study Summary: This was a triple-blinded, placebo-controlled randomized clinical trial conducted in a pediatric ED in Milan, Italy. Children aged 28 days to 4 years with a fever >38.5°C and a diagnosis of URI were enrolled and randomly assigned to receive either a single oral dose of 1.5g of a probiotic mixture (*Bifidobacterium breve* M-16V, *Bifidobacterium lactis* HN019, and *Lactobacillus rhamnosus* HN001) by mouth for 14 days or similarly dosed placebo. Caregivers were instructed to measure a rectal temperature on the enrolled children 3 times daily. Patients had follow-up by phone 7 days after the ED visit to collect data on temperature measurements and compliance and then again 7 days later (14 days after the initial visit) in the cases where there was persistent fever. Fever resolution was defined as at least 24 consecutive hours without antipyretic use and no rectal temperature >38.5°C. Children were excluded if they had chronic immunodeficiency, required hospitalization, had current diarrheal symptoms, or had recently taken probiotics.

Enrolled into the study were 128 children with a mean age of 2.5 years with 63 (49%) assigned to the intervention group and 65 (51%) to the placebo group. The authors found that 55% of patients fully adhered to the protocol, 13% were partially adherent, and 32% dropped out. Participants in the probiotics group had a significantly shorter duration of fever compared with those in the placebo arm (3 days vs 5 days; P <.001). These findings were similar in both the intention-to-treat (ITT) and per protocol analyses. There were few adverse events (constipation, diarrhea, and abdominal pain) and these did not differ between groups.

Editor's Comments: Probiotics have been explored for acute diarrheal illnesses in children with unimpressive results. However, prior studies have suggested that immune system modulation through probiotics may hold promise for acute infectious illness outside the gastrointestinal tract. Probiotics are generally considered very safe in patients with functional immune systems and are available without a prescription in most countries. Given the relative safety and low rate of adverse reactions, probiotics would be an attractive treatment option, especially in children and in cases where there are very few safe symptomatic and/or disease modifying treatments.

This study did suffer from a significant attrition rate with 45% of participants having at least some deviation from the protocol. However, in both the ITT and per protocol analyses, there remained a statistically (and clinically) significant reduction in duration of fever. This finding is particularly compelling given the study's relatively small sample size.

Additionally, we can glean other useful data that can inform our counseling for parents of young children with febrile illnesses. For example, the average duration of fever was 4 days across all participants. This is particularly important to note in guiding parental expectations and timing of reassessments. For example, if a child with 1 day or less of fever is discharged from UC, recommending a 24-48 hour recheck, apart from its impracticality, is also poor guidance since many children will remain febrile, yet appropriate management will not change.

The study did have some shortcomings. Notably, the authors did not differentiate the cause of the participants illness: viral vs bacteria, however, presumably these were treated as viral illnesses and without antibiotics. Additionally, there are not data on how many children required additional visits or hospitalizations. Despite these shortcomings, it seems reasonable to suggest probiotics as a solution to help children with URIs feel better faster when parents are grasping for any reasonable treatment option, as they often are. There are little risks to probiotics in otherwise healthy children and this study presents a compelling argument that they may shorten the duration of illness by as much as 40%—an impressive treatment effect—in a situation where we have not historically had much to offer. ■

High Blood Pressure and Headache: Cause or Effect?

Take Home Point: Patients with headache and elevated blood pressure readings experienced normalization of blood pressure when the headache was effectively treated.

Citation: Kareff H, Sharpe S, Gupta C, et. al.. Treatment of headache reduces blood pressure among most patients with migraine and elevated blood pressure. *Am J Emerg Med*. 2025 Feb 19:91:55-58. doi: 10.1016/j.ajem.2025. 02.017
Relevance: Patients with elevated blood pressure (BP) often present with concurrent headache. Among patients and clinicians alike, concerns often arise that high blood pressure readings are causative for headache and/or require treatment with anti-hypertensive agents. Given increasing evidence that acutely lowering asymptomatically elevated blood pressure increases the risk of adverse outcomes (eg, acute kidney injury, stroke, etc.), it's worthwhile to determine if blood pressure measurements will improve simply by virtue of treating an active source of pain (ie, headache).

Study Summary: This was a retrospective study using data from 4 separate prospective ED-based migraine studies conducted in New York City. Patients in the initial studies received medication, alone or in combination, which included prochlorperazine, metoclopramide, diphenhydramine, and dexamethasone among others. In the initial studies' protocols, systolic (SBP) and diastolic (DBP) blood pressure were measured both prior to initiation of treatment and rechecked 1 hour post treatment. Pain scores were assessed on a 0-10 scale and were also measured pre- and post-treatment of headache. The authors included patients with and without a pre-existing diagnosis of hypertension.

The authors reviewed data from 729 patients, 13.3% of whom presented with at least moderately elevated BP (SBP ≥ 150 mmHg or DBP ≥ 95 mmHg). Post-treatment with various migraine therapies, 73.2% (95% CI, 64.2–82.2%) experienced an improvement in DBP and 78.4% (95% CI, 70.0–86.7) improved SBP. Also, 11.3% (95% CI 4.9–17.8) experienced a complete normalization of BP within 1 hour of receipt of the study migraine medication. There was a significant association between reduction in pain scores and reduction in BP in patients without a diagnosis of hypertension, but no associated reduction in BP with lower pain scores in patients with prior a prior diagnosis of hypertension.

Editor's Comments: The data for this study did not account for patients who may have had undiagnosed hypertension at the time of enrollment. Additionally, there was no methods used to account for any vasoactive effects of the medications on blood pressure. Additionally, this was a retrospective, non-randomized study, which could introduce various forms of bias.

Despite these caveats, these data presents a compelling narrative corroborating elevated BP as an effect of headache (as it is for other sources of pain) rather than the cause of it. This is further supported by the finding that patients with existing hypertension did not experience corresponding decline in their blood pressures with the alleviation of pain. In total, while not the highest level of evidence, this is a clever study which supports disregarding BP elevations in patients with acute pain and reassessing after their pain is controlled. ■

Do Practice Sites Involved in Research Perform Better?

Take Home Point: In this study, general practices engaged in research activities had higher practice performance across multiple quality metrics.

Citation: Gibson J, Kontopantelis E, Sutton M, et. al. Relationship between research activity and the performance of English general practices: cross-sectional and longitudinal analyses. *Br J Gen Pract*. 2024 Dec 26;75(750):e50-e56. doi: 10.3399/BJGP.2024.0111
Relevance: The decision to engage in research is an important one as it has many implications for the logistics of clinical practice. Prior studies have shown improved clinical metrics among inpatient practice sites which were actively engaged in research. This study aimed to evaluate if this correlation also exists among outpatient practice sites.

Study Summary: This was a cross-sectional, longitudinal study using data from the National Institute for Health and Care Research Clinical Research Network (NIHR CRN) and the Royal College of General Practitioners in the United Kingdom to investigate relationships between general practice (GP) clinic research activity and organizational performance. Measures of performance tracked were clinical quality of care (data obtained from the Quality and Outcomes Framework, prescribing quality (proportion of antibiotics issued that were narrow-spectrum), patient experience measures (data from GP patient surveys), hospital utilization (non-elective admissions and rate of ED visits), and General Practitioner satisfaction and work-place retention.

Data from 6,203 GP practices were included. The authors found that participation in research activity was significantly associated with improved clinical quality, higher patient experience scores and negatively associated with frequency of ED visits among the GP clinic's patient population. The magnitude of these associations, however, was small.

Editor's Comments: Clinics' willingness to participate in research is a necessary ingredient for further medical

knowledge. Research is both financially and energetically costly and time-consuming. This study's findings, however, are useful in demonstrating a value beyond producing research manuscripts that involvement in research offers, namely in improvements in relevant clinical performance metrics including reducing ED visits and augmenting patient experience scores. Studies such as this one highlight the value of research networks. UC specific research networks, such as that of the Royal New Zealand College of Urgent Care, will be instrumental in determining if similar trends in clinical performance exist among UC centers engaged in research. UC administrators are often concerned about using UC as a study site because of perceptions that it will negatively affect performance metrics. This study's results, namely that patient experience scores were significantly higher in clinics engaged in research, is important ammunition for refuting this worry. ■

Perceptions of Video Visits among Non-Native English-Speakers

Take Home Point: Patients with non-English language preference (NELP) perceived multiple barriers to the use of video technology when compared to receiving care in person. Barriers cited included the concerns over the quality of communication and medical evaluation, as well as comfort with use of the technology.

Citation: Kong M, Rios-Fetchko F, Olmos-Rodriguez M, et. al. Challenges to Video Visits for Patients With Non-English Language Preference: A Qualitative Study. *JAMA Netw Open*. 2025 Feb 3;8(2):e2457477. doi: 10.1001/jamanetworkopen.2024.57477.

Relevance: Telehealth has risen dramatically in clinical application over recent years. While supporters tout the convenience and ease of access, barriers to the use of video technology among those with NELP could further exacerbate existing healthcare inequities.

Study Summary: This was a qualitative study using semi-structured interviews with patients who preferred Spanish or Cantonese rather than English in the ambulatory clinic network of a large, urban, academic health system serving a diverse population in California. Patients with NELP represented 12.2% of the overall patient population served by the health system. Health records were screened to identify suitable patients for participation, and the interviews were conducted with research staff who spoke the participants' preferred language.

Twenty-seven patients were interviewed (16 Spanish and 11 Cantonese speaking). Twenty participants (74%) reported having a phone, computer, or tablet with internet or cellular data access. The authors found that communication barriers with pre-existing communication, challenges from language discordancy, and concerns about inferior medical evaluations using video, reduced the motivation of patients with NELP to engage with video visits. Limited digital literacy, especially for older adults, was also described as a barrier. Participants described anxiety around video visits due to not knowing what to expect and fear over inabilities to troubleshoot technical issues. The lack of adequate clinical examination was cited by multiple participants as a concern for inferior care.

Editor's Comments: This study included only patients whose preferred language was Spanish or Cantonese. As many perceptions are culturally driven, it is likely that these perceptions would not be wholly reiterated by participants who had different primary languages. This study focused on primary care patients. As primary care is non-episodic and often scheduled far in advance, the necessity of rapid, easy access to a clinical evaluation is less. Similar studies examining patients' perceptions around virtual UC would be useful to determine if these concerns would be offset by the convenience offered through on-demand video based care accessible from their home. ■

Does Clinician Throughput Affect Others' Performance?

Take Home Point: The optimal pairing of physicians working side-by-side for maximal efficiency was a "fast" and a "slow" physician pairing in this study. When 2 "fast" ED physicians were paired, their average efficiency decreased.

Citation: Sangal R, Teresi R, Dashevsky M, et. al. Who is coming in? Evaluation of physician performance within multi-physician emergency departments. *Am J Emerg Med*. 2025 Apr:90:9-15. doi: 10.1016/j.ajem.2025.01.003

Relevance: Clinicians see patients at different paces. This ED-based study aimed to answer the question of optimal clinician pairing for overall throughput when more than 1 clinician is actively seeing patients.

Study Summary: This was a retrospective, cross-sectional, ED-based study which included combined data from a

community and academic ED in a large healthcare system in the northeastern U.S. Operational efficiency data were extracted from the electronic medical record (EMR). The primary outcome measured was patient length of stay (LOS). Secondary outcomes assessed were 72-hour ED revisits, imaging utilization, and admission rates.

Included were 212,902 unique ED visits among 105,666 unique patients. Of those, 134,795 (63.3%) of the visits included occurred at the academic ED. Patients were treated by 80 different ED physicians, of whom 32 worked exclusively in the academic ED, 15 worked exclusively in the community ED, and 33 worked at both. Faster physicians had a higher 72-hour ED revisit rate and lower admission rates at the initial index visit. The "fast" physicians had a 17.8% higher efficiency than the group average. When fast physicians were paired with other fast physicians their average LOS actually increased by ~3%. However, when fast physicians were paired with "slow" physicians, the authors found that the fast physicians efficiency increased, and they ordered fewer imaging studies. When slow physicians were paired with other slow physicians, the average waiting room times increased by nearly 7%.

Editor's Comments: This study examines physician efficiency and LOS, which are both complicated, multifactorial metrics with many influencing factors. The large number of visits provided sufficient power to draw some conclusions about pairing for the purposes of efficiency. This was an ED based study, so it's unclear, but worthy of study to determine if these trends would hold true in UC as well. It is similarly uncertain how these results might apply to pairings of physicians and advanced practice clinicians (APCs). Additionally, many UC centers have only 1 clinician working at any given time, especially in the U.S., and therefore, such considerations are not relevant. Furthermore, developing a clinician schedule is a complicated process that involves accommodating vacation requests and often coverage across multiple sites. With current staffing shortages, even in multiclinician practice locations, it is a relative luxury to consider things as nuanced as how the efficiency of clinicians working together might impact efficiency. However, the possibility of clinicians' efficiencies being influenced by that of a colleague working with them is likely a novel concept for many. This study does suggest that we do not work in silos when we are caring for patients side-by-side. While this study does not give a magic formula for staffing UC centers, it does offer one additional dimension of staffing to consider for those who are focused on continuing to whittle down the door-to-door metric. ■