Adequate hemostasis is essential to the performance of safe and technically successful endoscopic sinus surgery. Over the years, various means of achieving adequate hemostasis have been proposed and tested including patient positioning maneuvers, specialized anesthesia techniques, injected agents, and topical application of vasoconstrictors. Topical concentrated epinephrine (1:1000) has been shown to be highly effective as a topical vasoconstrictor. However, given its potency, its safety has been questioned and was evaluated in a Best Practice literature review in The Laryngoscope published January 2019.

Five of the highest quality studies were reviewed, two of which were prospective cohorts, one a systematic review, and two retrospective reviews. In the largest of these studies, nearly 2000 patients were retrospectively reviewed at two academic centers. Only one complication directly related to topical epinephrine was described: ST elevation intraoperatively in a patient with a cardiac history. The patient had an uneventful recovery and was later found to have 80% coronary obstruction and epinephrine-induced coronary vasospasm was the suspected pathology.

A more contemporary systematic review of 42 articles mirrored these findings of extremely low complication rate and suggested that topical concentrated epinephrine is safe for sinus surgery in the absence of cardiac history. Furthermore, there was a recommendation to dilute the concentration to 1:2000 in children or patients weighing less than 85 pounds (or if possible use oxymetazoline).

Regarding change in physiologic parameters, a retrospective study of more than 1100 patients found there to be no meaningful alteration of intraoperative blood pressure or heart rate. This was supported by a similar but prospective study of more than 1200 patients. However, a smaller study of 26 patients in which arterial lines were used for hemodynamic monitoring. 6 patients exhibited increase in systolic and mean arterial pressure. However, these values were easily corrected with vasodilatory maneuvers and there were no complications reported in this study.

Best Practice Recommendation:
It is the recommendation of the authors that topical epinephrine is safe for use in endoscopic sinus surgery, but should be used with caution in patients with cardiac history. No formal recommendation was made for use in children, as there is a paucity of data in this population.

It is particularly important to point out specific procedural recommendations for the use of topical epinephrine. Given the devastating consequences of accidental injection of this drug, it is crucial to properly identify and label this form if an injection is also to be performed. In my training, fluorescein was used to stain the concentrated epinephrine to identify it as such in order to prevent accidental injection. Pledgets should also be thoroughly rung out prior to insertion to reduce the mucosal absorption of the drug and reduce systemic effects.