

## SHORT COMMUNICATION

### Forestalling Lidomageddon: Local Solutions to the Nationwide Shortage of Lidocaine

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#### INTRODUCTION

Local anesthetics ensure patient comfort during invasive skin procedures. Manufacturers of lidocaine in the US (AuroMedics, Fresenius Kabi, Hikma, and Pfizer) have experienced supply chain-induced manufacturing delays that are predicted to last months to years. Dermatologists must effectively manage their lidocaine or risk exhausting supplies.

#### TIPS TO MAXIMIZE THE AVAILABLE LIDOCAINE SUPPLY

##### 1. Take Inventory

Accurate accounting of the current anesthetic inventory is important. Aging vials of anesthetic should be utilized first to avoid the possibility of expiration.

##### 2. Dilute injectable lidocaine to preserve available supplies\*

Dermatologists generally use 1.0-2.0% lidocaine for local anesthesia. However, 0.5% lidocaine provides pain control equivalent to 1.0% lidocaine.<sup>1</sup> Diluting higher concentrations of lidocaine

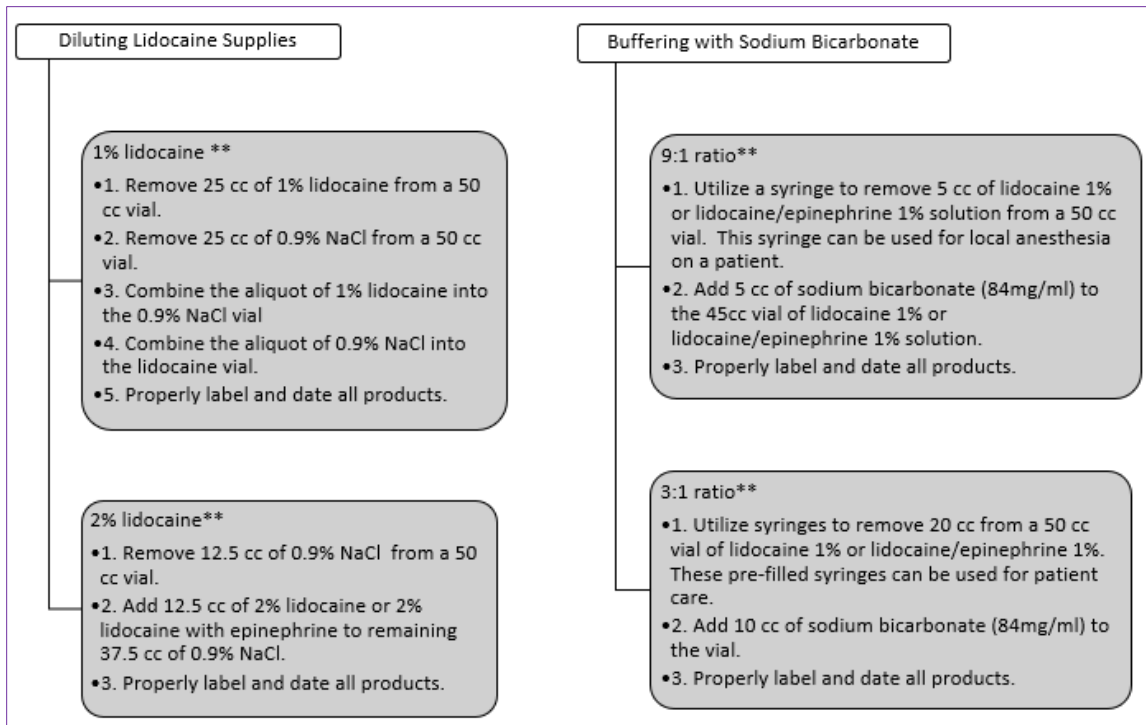
solution stretches the available volume of injectable anesthetic. (See Figure 1).

##### 3. Mix lidocaine without epinephrine and lidocaine with epinephrine\*

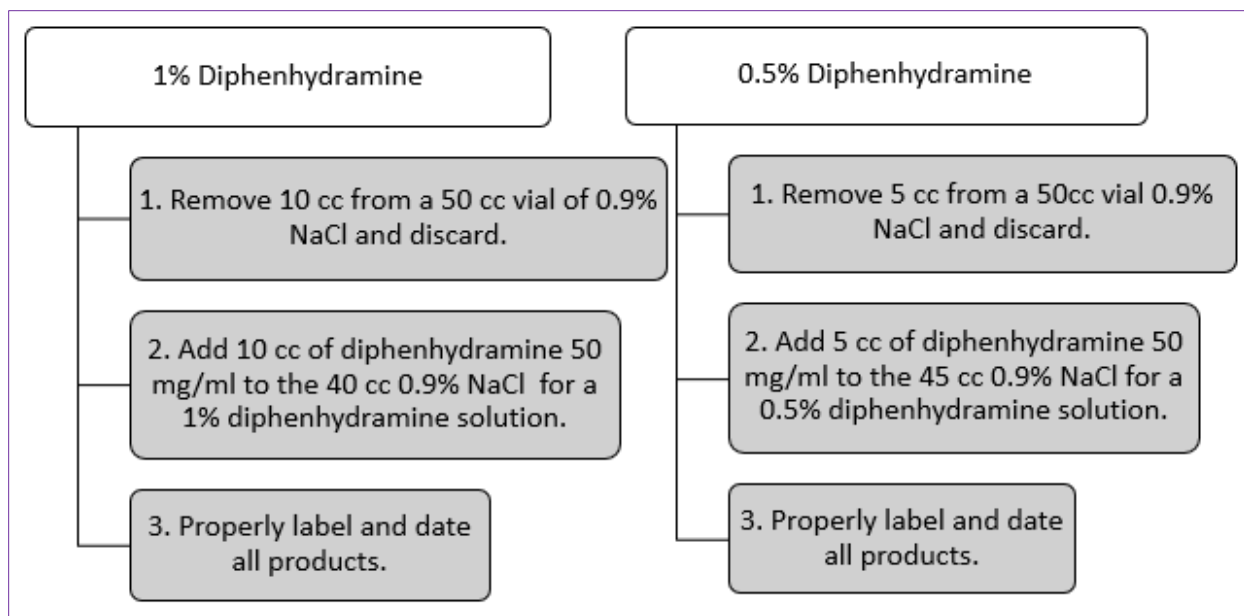
Lidocaine with epinephrine (5 µg/mL) in 1:100,000 or 1:200,000 ratios increases the duration of anesthesia and controls bleeding to maintain adequate anesthesia during dermatologic procedures.<sup>2</sup> If an office has a good supply of lidocaine without epinephrine, it could be mixed 1:1 with a dwindling supply of lidocaine with epinephrine to double the available supply of anesthetic with epinephrine.

##### 4. Decrease waste: Utilize prefilled syringes appropriately

Prefilling syringes with lidocaine solutions increases office efficiency. The United States Pharmacopeia recommends disposing of these preparations after 24 hours at room temperature.<sup>2</sup> However, unused prefilled lidocaine syringes exhibit antibiotic, antifungal and antimicrobial activity and maintain potency of the anesthesia for 1-



**Figure 1.** Recipes for Stretching Current Supply of Lidocaine.



**Figure 2.** Recipe for Preparing 1.0% and 0.5% Diphenhydramine for Use as a Local Anesthetic\*

\*All drug compounding must be performed in compliance with United States Food and Drug Administration and United States Pharmacopeia.

\*\* If 50cc vials of lidocaine are not available, carefully maintain the same ratio to dilute available lidocaine with 0.9% NaCl or sodium bicarbonate

2 weeks.<sup>2</sup> Revisiting preparation and storage practices of prefilled lidocaine syringes can decrease waste.

Additionally, clinics often use 3 ml syringes and routinely draw up the full amount “in case” it is needed. A single punch or shave biopsy procedure requires less than this amount. Drawing up 0.5 mL, 1.0 or 1.5 mL of lidocaine solutions for specific purposes is a more conscientious use of limited resources.

## 5. Buffering lidocaine with Sodium Bicarbonate preserves lidocaine supplies in addition to decreasing injection pain.\*

Lidocaine without epinephrine and lidocaine with epinephrine are acidic solutions that can cause a burning sensation when administered. Lidocaine injectables are routinely buffered in a 9:1 ratio utilizing 8.4% sodium bicarbonate to decrease pain. Utilizing a 3:1 or 5:1 ratio of lidocaine to sodium bicarbonate minimizes pain more effectively while providing adequate anesthesia and reducing the volume of lidocaine utilized.<sup>3</sup> (See Figure 1).

## ALTERNATIVES TO LIDOCAINE

1. Bupivacaine (Marcaine) 0.25% is an alternative amide anesthetic which provides a prolonged duration of action. It should be used carefully due to a 4:1 risk of toxicity compared to lidocaine.<sup>4</sup> Effective ester anesthetics include procaine (Novocain™) and tetracaine (Pontocaine™).<sup>3</sup>
2. Antihistamines such as diphenhydramine are effective alternatives to “caine” anesthetics for simple procedures.<sup>5</sup> (See

Figure 2). They have been widely used in patients with suspected “caine” allergies. If large amounts of dilute diphenhydramine (0.5-1.0%) are injected (10 cc), patients should be advised against driving for several hours after the procedure.<sup>5</sup>

3. Normal saline (0.9%) can provide temporary anesthesia for simple procedures but is less effective than the options provided above.<sup>3, 5</sup>

## CONCLUSION

This article offers specific, practical approaches to assist clinical dermatologists trying to maintain their surgical practices during the current lidocaine supply chain debacle. Even after the crisis has ended, conscientious providers may wish to implement many of these practices which could save thousands of dollars for their practice each year.

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