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Scented Masks in Pediatric Anesthesia

To the Editor:—I read with interest Yamashita's recent correspondence entitled "Fruit-flavored Mask Induction in Children."¹ I would caution clinicians about aerosolizing fruit flavors into the inhalational gas mixtures in the manner that these authors suggest. I have included a list of the common ingredients of fruit flavors used in this country to scent pediatric masks (Lorann Oils, Inc.) (Table

TABLE 1. Ingredients in Fruit Flavor Extracts*

Cherry	
Benzaldehyde	Propylene Glycol Acetal
Propylene Glycol Acetal	
Benzaldehyde	
Vanillin	
Tolaldehyde	
Heliotropine	
Amyl Acetate	
	Ethyl Isobutyrate
	Ethyl Vanillin
	Alpha Ionone
	Anisyl Acetate
	Frambinone
	Maltol
	Red #40
	Blue #1
Grape	
Methyl Anthranilate	
Ethyl Butyrate	
Amyl Acetate	
Citral	
Orange Oil	
Vanillin	
	Gamma Undecalactone
	Ethyl Alcohol
	Propylene Glycol
	Polysorbate 80
	Red #40
	Blue #1
Watermelon	
Ethyl Acetate	
Butyl Heptanoate	
2,6 Dimethyl 5-Heptenal	
Amyl Acetate	
Ethyl Isovalerate	
Iso Amyl Valerate	
Ethyl Pelargonate	
	Methyl Eugenol
	Lemon Oil
	Methyl Heptin
	Carbonate
	Ethyl Caprate
	Ethyl Caprylate
	Ethyl Alcohol
Strawberry	
Propylene Glycol	
Aldehyde C-16	
Alcohol 12%	
Ethyl Vanillin	
Ethyl Acetate	
	Acetic Acid
	Diacetyl
	Orange Oil
	Triacetin
	Red #40

* Lorann Oils, Inc., Lansing, MI 48910.

1). Aerosolizing a compound with up to 15 ingredients (cherry) may not be ideal.

The issue of the safety in aerosolizing fruit extracts into anesthesia breathing circuits involves the toxicologic, allergic, and airway irritant potential of their chemical ingredients. While there is very little data in this area, there does exist some evidence to support a cautionary note about this practice.

From the toxicologic standpoint, the industrial toxicology literature does cite some evidence for concern. Ethyl acetate (threshold limit value of 400 ppm in air) has caused renal hyperemia, CNS depression, and respiratory tract irritation.² In addition, amyl acetate (threshold limit value of 100 ppm in air) has shown renal, hepatic, and CNS toxicity.² Propylene glycol is known to be associated with lactic acidosis.³

The glycols have been associated with allergic contact reactions.⁴ Even without an overt allergic potential, patients with allergic histories (*i.e.*, hay fever, eczema) or reactive airway disease may not benefit from the intrinsic irritant properties associated with inhaling many of these chemicals.

Rather than direct aerosolization of these extracts, it seems safer to either apply small quantities to the face mask in the traditional manner, or to use a specifically designed face mask which has the technology of scent release from the polymer base. Such a scented mask is easier and safer, yet still achieves the advantages of scenting pediatric masks to camouflage the pungent odors of inhalational agents and to improve patient acceptance. Scented pediatric anesthesia masks are available from King Systems Corporation.*

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In reply:—We thank Dr. Hinkle for his comments and concern about the use of fruit flavors to aid induction of anesthesia in children. The possible adverse reactions to chemical ingredients in fruit flavors cannot be totally ignored. However, fruit flavors have been used in more than 4000 cases over 5 yr at Hyogo Children's Hospital¹ and at our hospital,² and thus far we have not encountered any adverse reactions. Any drugs or chemicals, including fruit flavors, must be used carefully in patients with allergic histories or reactive airway disease.

The use of scented masks may be a good alternative, but it must be a costly alternative. One additional word of caution: ethyl alcohol in fruit flavors does interfere with measurement of volatile anesthetics by the Datex "Normac," an infrared anesthetic analyzer.³

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Guided Orotracheal Intubation in the Operating Room using a Lighted Stylet

To the Editor:—I read with great interest the article by Ellis *et al.*¹ on this subject. Recently, Cavo² has described 30 cases of unilateral vocal cord paralysis after endotracheal intubation. Since transient voice changes and hoarseness are common after incubation, and since few of these patients have their larynx examined, the true incidence of this complication is not known. However, it is presumed that unilateral vocal cord paralysis is caused by undue pressure of the endotracheal tube cuff on the anterior branch of the recurrent laryngeal nerve in the sub-glottic region. The lighted stylet can be used to place the proximal end of the cuff on a plastic endotracheal tube just below the cricoid cartilage.^{3,4} This is achieved by advancing the endotracheal tube through the laryngeal opening with the light of the stylet positioned at the proximal end of the cuff until the transilluminated light is seen in the neck, just below the cricoid cartilage. The cuff is then inflated, and the endotracheal tube is firmly secured. It is important for anesthesiologists to remember that en-

dotracheal tube cuffs are designed to produce a seal in the trachea, and not in the larynx.

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