

CORRESPONDENCE

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In Reply:—We thank Green and Beger for their observations on the Combitube. We concur with their assessment that the possibility of excessive insertion may result in the inability to ventilate a patient's lungs. As with all airway devices, vigilance is the operative word. Sheridan Catheter will review the package insert for clarification of the depth of insertion and auscultation of breath sounds.

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A Simple Spreadsheet Tool for Cost Accounting Anesthesia Care

To the Editor:—Health-care providers, including anesthesiologists, are under increasing pressure to review the importance that cost factors play in their practices.¹ As an initial step, an accurate accounting of the cost of anesthetic agents is needed. We developed a cost accounting tool, using computer spreadsheets, that simply and rapidly quantitates nonpersonnel costs of anesthesia care.

Methods. A list of intravenous and inhalational anesthetic agents and several disposable anesthesia equipment items was compiled and entered into a computerized spreadsheet format using Microsoft's Excel for Windows, Version 5 program (fig. 1). The spreadsheet in-

corporated unit costs (cost paid to supplier), enabling the agents and items to be tracked and their costs totalled per anesthetic encounter. The cost estimates of volatile anesthetics were obtained from repetitive calculations of vaporizer settings and fresh gas flow rates at specific times using the formula²

$$\text{Cost} = (P \cdot F \cdot T \cdot M \cdot C) / (24.12 \cdot D \cdot 100),$$

where *P* = percent inspired anesthetic (volume %), *F* = fresh gas flow (l/min), *T* = time (min) anesthetic was being delivered at the

Table 1. Anesthetic Drug Waste (Drawn Up, but Unused) before and after an Educational Intervention Using the Spreadsheet Tool

Drug	mg/ml	Cost per ml	Waste in ml per Week		Waste Cost per Week (\$)	
			9/92	5/93	9/92	5/93
Midazolam	1.0	1.59	85	72	135.00	114.48
Fentanyl	0.05	0.12	114	144	13.68	17.28
Sufentanil*	0.01	8.65	59	14	102.07	24.22
Succinylcholine	20	0.04	443	43.5	17.72	1.74
Atracurium	10	4.21	117	6.5	492.57	27.37
Vecuronium	1	1.73	244	39.5	422.12	68.33
Propofol	10	0.525	418	257	219.45	134.93
Thiopental	20	0.10	844	1039	84.40	103.90
Ephedrine*	5	0.325	519	108	16.87	3.51
Phenylephrine*	0.1	1.78	327	45	5.82	0.80
Atropine	0.5	0.615	91	7.5	55.97	4.61
Glycopyrrolate	0.2	0.28	65	8.5	18.20	2.38
Total waste per week					1,583.87	503.55

* Diluted concentrations: sufentanil 10 µg/ml, ephedrine 5 mg/ml, phenylephrine 100 µg/ml.