

## Correspondence

### *The cost of anaesthetic vapours*

To the Editor:

Increasingly, we find ourselves having to justify the cost of our anaesthetic drugs. Although it is easy to obtain the cost of a vial of fentanyl or propofol the cost of inhalation anaesthetics is more elusive. Herein is provided a formula to calculate these costs.

The cost in dollars is  $\frac{PFTMC}{2412 d}$

where M, C, and d are agent specific and are defined:

		<i>Halothane</i>	<i>Enflurane</i>	<i>Isoflurane</i>
Molecular weight (g)	M	197.4	184.4	184.4
Cost (\$ · ml <sup>-1</sup> )	C	0.069	0.5	0.86
Density (g · ml <sup>-1</sup> )	d	1.87	1.52	1.50

The three other variables are the vaporizer concentration, (%) P, the fresh gas flow, F (L · min<sup>-1</sup>), and the duration of anaesthesia, T (min). The formula can be simplified to:

Cost (\$) = PFT/331 for halothane at \$ 17.25/200 ml  
 = PFT/39 for enflurane at \$126.00/250 ml  
 = PFT/23 for isoflurane at \$ 86.00/100 ml

Example: a 45 min anaesthetic, with 0.75% enflurane and oxygen and nitrous oxide at 2 and 4 L · min<sup>-1</sup> costs 0.75 × 6 × 45/39 = \$5.19.

This calculation assumes the gases are delivered from the machine at an atmospheric density corresponding to 21° C and explains the factor 2412 in the formula. At 0° C, the number 2240 would be used, corresponding to the molar volume of a gas of 22.4 L.

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### *Spinal catheter does not reduce post-dural puncture headache after Caesarean section*

To the Editor:

The purpose of the following study was to determine whether the incidence of PDPH after Caesarean section could be reduced by keeping a 28G spinal catheter in place for 24 hr. In 32 patients a 22G needle (Quincke, Beckton-Dickicson) was introduced between the L<sub>3</sub>-L<sub>4</sub> or L<sub>4</sub>-L<sub>5</sub> vertebrae. A 28G spinal polyurethane catheter (Preferred Medical Products, Toronto, Canada) was introduced two to three cm into the subarachnoid space through the needle, after which the needle was removed and local anaesthetics were injected in increasing amounts to reach a sufficient level of anaesthesia. The patients were randomly assigned to have the catheter removed immediately after surgery (Group 1), or 24 hr later (Group 2). The measured variables are reported in the Table. Statistical analyses were done using the Student t test and the ANOVA for parametric data and the Chi-Square test and Mann Whitney test were used for the non-parametric values. Statistical significance was defined at a  $P \leq 0.05$ .

Twenty four hr catheterization of the subarachnoid space did not reduce the incidence of headache associated with spinal anaesthesia in pregnant patients. Our data do not confirm previous data and do not support the hypothesis that the local inflammatory reaction of the dura caused by the catheter, with oedema and fibrinous exudate, will seal the hole when the catheter is removed.<sup>1</sup> If spinal catheters produce inflammation in humans as they do in

TABLE

	<i>Group 1</i> <i>No. 17 catheter removed directly after surgery</i>	<i>Group 2</i> <i>No. 15 catheter removed 24 hr later</i>
Mean age	29 ± 0.8	32 ± 1.4
Mean weight (kg)	76 ± 5.5	79 ± 7.7
Total anaesthetic (ml)	1.9 ± 0.5	2.3 ± 0.2
Patient with previous c/s	17 (65%)	12/15 (80%)
Post-spinal headache	6/17 (35.2%)	6/15 (40%)
Mean duration of PDPH (hr)	46 ± 7	57 ± 9
Blood patch (no. of patients)	5	3