

lock caps are available on most stopcocks and pressure monitoring sets.

For departments not using disposable breathing circuits or those not interested in having a mass-spec elbow on each circuit, it is worth noting that the elbow (offered separately) is still a desirable and economic alternative.

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A Simple Method by Which to Obtain a Desired Oxygen Concentration

To the Editor:—Several letters have described simple methods by which air and oxygen can be mixed to obtain a desired inspired oxygen concentration (FI_{O_2}). Priano *et al.*¹ utilized an Alligation Alternate, and DesMarteau and Byles² derived a formula, both of which are relatively easy to use, but must be remembered. We employ a method which allows the construction of a table any time that mixing air and oxygen is necessary.

The key to the method is to use an 8-l total flow (\dot{V}_T). As pointed out by DesMarteau and Byles,

$$[\dot{V}_{AIR} = \dot{V}_T \times (1 - FI_{O_2}) \times 1.25] \quad (1)$$

and

$$[\dot{V}_{O_2} = \dot{V}_T - \dot{V}_{AIR}], \quad (2)$$

where \dot{V}_{O_2} and \dot{V}_{AIR} are the oxygen and air flow meter settings, and \dot{V}_T is the total flow. By employing an 8-l total flow, equation 1 becomes

$$[\dot{V}_{AIR} = 10 \times (1 - FI_{O_2})]. \quad (3)$$

Thus, for each .1 increment in FI_{O_2} , \dot{V}_{AIR} changes by 1 l. This allows the instantaneous construction of table 1.

To construct the table, first write the initial line for air alone, and then the final line for oxygen alone. The values for an FI_{O_2} of .3 to .9 are filled in for the \dot{V}_{O_2} column by increasing from 1 to 7 l in 1-l steps, and, similarly, for the \dot{V}_{AIR} column, by decreasing from 7 to 1 l in 1-l steps.

This method does not require the use of a calculator, nomogram, or equation. If the total flow other than 8 l is desired, scaling the table up or down is a simple matter.

An oxygen analyzer gives a double check of the settings, and its use is recommended.

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TABLE 1.

FI_{O_2}	\dot{V}_{O_2}	\dot{V}_{AIR}	\dot{V}_T
.20	0	8	8
.3	1	7	8
.4	2	6	8
.5	3	5	8
.6	4	4	8
.7	5	3	8
.8	6	2	8
.9	7	1	8
1.0	8	0	8

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2. DesMarteau JK, Byles PH: Another method of mixing air and oxygen. ANESTHESIOLOGY 58:490, 1983

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