indeed observed pulmomuy
30:1 (Fig 2). Lysis of 50 percent of the target cells was
indeed observed with these ratios in 100 normal individuals.
In the other patient the lymphocytes in the pleural fluid had
depressed but existent antibody-dependent cell-mediated cytolysis, while the lymphocytes in his peripheral blood
reacted normally in this test.

DISCUSSION

According to their reactivity in mixed lymphocytic culture,
to phytohemagglutinin, and to PPD, it appeared that the
lymphocytes in the pleural fluid of patients with metastatic
pulmonary malignant neoplasms had a normal thymus-depen-
dent function. Moreover, functional "null cells" were
found in the pleural effusion of two patients, as assessed by
antibody-dependent cell-mediated cytotoxicity. Therefore,
these data strongly support the results of Pettersson et al,1
who reported that the pleural fluid of patients with cancer of
the lung contained a "normal" number of T lymphocytes (ie,
rosette-forming cells), as well as a significant number of "null
cells" (ie, lymphocytes which are the effector cells in anti-
body-dependent cell-mediated cytotoxicity).

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Positive-Pressure Breathing and
Induction of Cough

To the Editor:

We would like to report findings that are in direct dis-
agreement with those of Shim et al in their article entitled
"The Effect of Inhalation Therapy on Ventilatory Function
and Expectoration" (Chest 73:798-801, 1978). In a study of
ten male hospitalized patients with an exacerbation of
chronic obstructive bronchitis (mean forced expiratory vol-
ume in one second equalled 47 percent of predicted, and
mean arterial oxygen pressure equalled 9.6 KPa), an inter-
mittent positive-pressure nebulizer (Bird Mark 7) was com-
pared with a compressed-gas simple nebulizer (Inspiron Mini-
Neb) for their effectiveness in producing cough and sputum.
The study was performed on four consecutive days, with the
two forms of nebulization being alternated between morning

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and afternoon and followed by physiotherapy of the chest. All coughs during nebulization were spontaneous.

On each of the four days, there was a highly significant increase in the number of coughs produced during nebulization with intermittent positive-pressure breathing (IPPB), compared to the number produced during simple nebulization (P < 0.01, P < 0.005, P < 0.005, and P < 0.005 by daily paired t-tests). The volume of sputum produced was also significantly greater (P < 0.01, P < 0.001, P < 0.01, and P < 0.005).

On the first three days, the combination of physiotherapy and nebulization with IPPB produced a significantly greater volume of sputum than physiotherapy plus simple nebulization (P < 0.025, P < 0.005, P < 0.05, and P < 0.10). The addition of physiotherapy to either method of nebulization was much more effective in the production of sputum than either method of nebulization alone (P < 0.001).

Our results would indicate that there may be a place for therapy with IPPB. There is certainly a place for physiotherapy in the clinical situation we studied.

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"The Most Advanced Respiratory Life Support System Available"

To the Editor:

Statements advertising a particular commercially available ventilator (Puritan-Bennett MA-1) as "the most advanced life support system available" (1) and "the most advanced volume ventilator" (2) in these instances, clearly misleading. When the MA-1 was introduced 11 years ago, these sweeping statements might have been acceptable. For many years the MA-1 was the "state of the art," and Puritan-Bennett Corp. should be congratulated for that. In fact, the MA-1 is still the most commonly used ventilator for prolonged mechanical ventilation in the entire country and in my own critical care practice. As well, the MA-1 does work reasonably well in patients with reasonably normal lungs. Nonetheless, to publish in December 1977 that the MA-1 is "the most advanced volume ventilator" (2) is importantly misleading. The addition of a new humidifier, spirometer alarm, and demand valve has done nothing to alter the machine's performance capabilities in terms of delivering the prescribed tidal volume.

The MA-1 routinely fails to deliver the set volume in patients with poor compliance. Indeed, the operating instructions state, "... if the pressure limit is reached, inspiration ends," venting the remainder of the tidal volume. The manual also depicts flow curves of poor compliance wherein the measured flow rate, although set at 40 L/min, is actually 15 L/min, which will greatly prolong the inspiratory time for any given volume. Studies in our laboratory utilizing the Dixie Test Lung (Michigan Instruments TTL) have consistently shown that under simulated conditions of low compliance or high resistance (or both), as very often seen in our patients, the MA-1 will not deliver the set volume by hundreds of milliliters (Fig 1). The flow-rate capability of the MA-1 of 100 L/min is grossly inadequate in patients with advanced respiratory failure. In these cases, flow rates up to 150 L/min may be required.

During the last five years of my practice, there have been numerous patients who I believe would have died or would have died far sooner if allowed to remain on mechanical ventilators with the limited capabilities of the MA-1. In fact, there was a patient in our unit who required peak pressure of 110 cm H2O for more than three weeks. He would have died if his ventilator had been capable of delivering volume only up to a peak pressure of 80 cm H2O. There are at least four other ventilators that will perform under these circumstances. Thus, to advertise a ventilator that cannot perform in patients with poor compliance as "the most advanced respiratory life support system available" is clearly misleading. It also seems inappropriate under medical device legislation, which requires that advertising claims be consistent with the performance capabilities of the machine.

For many years, there has been strict regulation of advertising for drugs. Shouldn't there be a caveat in the advertisement for the MA-1 stating, "Warning: Do not use on patients with severe respiratory failure requiring inspiratory pressure of more than 80 cm H2O, as this machine is incapable of delivering the tidal volume and in this situation will vent the volume to the atmosphere"?

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