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Cylinder Caution: Open Slowly to Minimize Recompression Heat

To the Editor: — Feeley et al.1 reported that medical compressed gas cylinders are potential hazards to patients and medical personnel. They recorded 120 (1.2 per cent) potentially hazardous irregularities out of a total of 14,500 cylinders delivered to Beth Israel Hospital over a four-year period (actually 0.83 per cent). While all of the irregularities described are potential hazards, it seems that the hazard with the highest potential for injury or damage is not discussed. The hazard I speak of is “opening a cylinder valve too fast,” and in particular an oxygen cylinder fully charged to 2,200 psi.

For the last 18 years, I have been involved in the design of aircraft oxygen breathing equipment and inhalation anesthesia equipment. Since this equipment is used in conjunction with medical gas cylinders, I have become familiar with the hazards associated with compressed gas cylinders. My observations indicate to me that personnel involved in the everyday handling of medical gas cylinders in conjunction with other medical apparatus do not receive adequate instructions regarding the safe handling and use of these cylinders. Even those that do receive adequate training tend to become complacent about safe handling procedures, apparently because thousands of cylinders are handled every day without incident. Even trained and experienced personnel do not gain respect for the potential hazard of opening an oxygen cylinder valve too quickly unless they have been involved in or observed the results of a disastrous fire that occurred because the cylinder valve was not opened SLOWLY.

Instructional material such as CGA Pamphlet P-12 and labels on cylinders instruct the user to open the cylinder valve slowly. However, the reason for doing this is not stated, and therefore this instruction tends to be forgotten or disregarded. The potential for future accidents would be decreased considerably if instructions and instructors would change the statement from “open cylinder valve slowly” to “open cylinder valve slowly to minimize recompression heat.”

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References
2. Safe Handling of Compressed Gases. Pamphlet P-1, Compressed Gas Association, 500 Fifth Avenue, New York, 10036

Prevention of Ventilator Accident

To the Editor: — There are several points to be made about Dr. Waterman’s report of accidental ventilator-induced hyperventilation.1 First, while wall oxygen is supplied at 50 psi, there is a pop-off valve in the ventilator to prevent large quantities of oxygen at this high pressure from being delivered to a patient. A pressure of 50 psi is equivalent to more than 3,500 cm H2O, certainly in excess of the pressure limit of the ventila-