A safe manual ventilator should allow adjustment of the tidal volume, like the Cardiovent,® should have a 20/60-mbar valve like the Combibag,® and an audible control of the pressure-release valve. In addition, an ideal manual ventilator should have a built-in manometer and an expiratory volumeter.

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To the Editor:

In Central European countries, the philosophy of prehospital advanced trauma life support by well-trained emergency physicians is preferred. However, our North American colleagues favor a paramedic approach to trauma life support. Among these, colleague opinions vary as to how this should be provided, some preferring the "scoop and run" approach, i.e., rushing a patient to the hospital instead of taking care of vital functions before and during transport, and others recommend the on-site care approach.

Sampalis et al have published results of their study under the titles of "Impact of On-site Care, Prehospital Time and Level of In-hospital Care on Survival in Severely Injured Patients," "Standardized Mortality Ratio Analysis in a Sample of Severely Injured Patients from a Large Canadian City Without Regionalized Trauma Care," in the *Journal of Trauma* in 1992 and 1993, respectively, and now in *Prehospital and Disaster Medicine* (Volume 9, No. 3), titled "Determinants of On-Scene Time in Injured Patients Treated by Physicians at the Site." The authors came to the conclusion that "physician-provided, on-site advanced life support causes a significant increase in scene time and total prehospital time. These 'delays' are associated with an increased risk for death in patients with severe injuries."

For Central European purposes, these and a number of other studies are of critical importance. Due to the current financial crisis experienced by health-care systems throughout Europe, quite a few politicians favor abolishing an advanced physician-guided prehospital trauma and emergency-care system and instituting the approach currently used in the United Kingdom and the United States Yet, physicians in these countries increasingly seem to lean toward a physician-guided prehospital system.

Unfortunately, "the data from which we are left to draw conclusions are taken from a widely varied and heterogeneous population with mixed cases of blunt and penetrating trauma and a widely differing injury severity between studies" and are "mostly based on poor statistical analyses and without a prospective controlled and randomized approach."[1]

The study performed by Sampalis et al shows a number of weaknesses, to which Jones referred to as early as 1991:

Population Samples:
First, the authors assessed the records of:

a) 4,722 patients who were treated by physicians at the scene in Montreal;
b) 1,477 patients where a physician was required by the central dispatching agency but was not available;
c) A third sample of 977 patients treated by emergency medical technicians where a physician was neither required nor available; and
d) An initial group of 4,722 patients where 312 were excluded because they died at the scene or during transport and 1,117 patients as they were not hospitalized. Of the remaining 3,293 patients, 2,956 additional patients were excluded because they only had minor trauma. The final number of major trauma cases treated by physicians at the scene and during transport, therefore, stands at 337.

The 337 patients were compared with a sample of 10% (287) of those patients who would have needed primary care by a physician (according to what criteria?), but where a physician was not available at the scene as well as to 13% (304) of the sample of emergency medical technician treated trauma cases.

Of the patients from groups I and II, 415 fulfilled the criteria:

- Alive at the scene
- A prehospital index of >3
- Transported to a hospital
- Admitted to a hospital
- Received surgery and care in the intensive care unit

Out of these 415, 30 patients were excluded because they died and another 30 because no records were available. A total number of 355 patients with severe trauma finally entirely met the outlined criteria.

Standard of Care
Standard No. 1 included prehospital advanced trauma life support or better, i.e., at least *one* of the following measures—intubation, medication, intravenous fluids, or pneumatic anti-shock garment (thus, only fluids

might have been compared with the full spectrum of trauma life support). Standard No. 1 was compared to Standard No. 2—none of the above, possibly basic trauma life support. A total prehospital time of more or less than 60 minutes was used as a variable (i.e., a call to hospital admission).

The major conclusion drawn by the authors of this study was that "physician-provided, on-site advanced life support causes a significant increase in scene time and total prehospital time. These 'delays' are associated with an increase in the risk for death in patients with severe injuries."

The study design outlined above, including imprecise intervals, a case mix of patients treated unnecessarily by physicians and those where a physician was unavailable but possibly required, definition of basic trauma life support and advanced trauma life support, comorbidity of patients, a lack of standardized physician training, etc., does not justify the conclusions drawn by the investigators. A so-called prospective, observational case reference study does not seem to be the appropriate approach to allow these conclusions.[1] For example, the extent of physician care was not standardized at the scene and during patient transport (at least one of the various advanced trauma life support measures, why not all of them?). The qualification of the personnel was not standardized. A patient with an IV administered by an insufficiently qualified physician may have been compared with a patient in whom the full extent of advanced trauma life support had been established at the scene and during transport by an experienced physician, while the two cases had entirely different total prehospital times.

Conclusions like those drawn by Sampalis et al only can be accepted if they are based on prospective, randomized, controlled studies, like the investigation recently published by Bickel et al in the *New England Journal of Medicine*. The conclusions of Sampalis et al, however, do not serve as the basis for a decision on the question of whether physician activities contribute to the patient's benefit or harm. The criteria taken into account must be standardized, otherwise the scientific community is being misled.

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