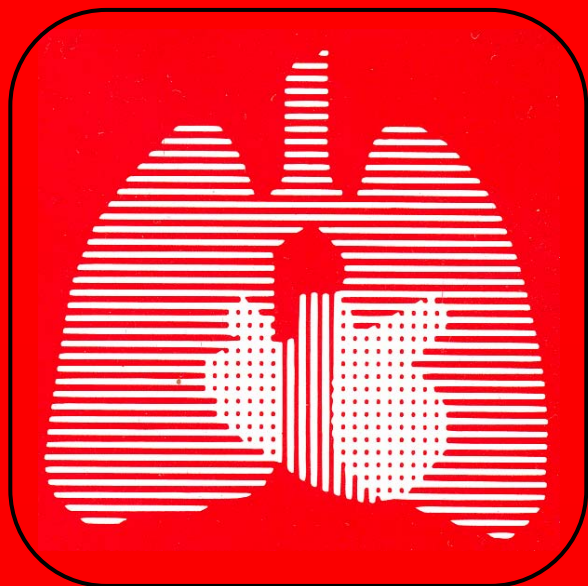


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COPD

Pulmonary Hemodynamics in Advanced COPD
Candidates for Lung Volume Reduction Surgery
or Lung Transplantation (p 1531)

Thabut et al

Editorial Comment by Weitzenblum and Chaouat

Training

Variation in Training for Interventional
Pulmonary Procedures Among US
Pulmonary/Critical Care Fellowships: A Survey
of Fellowship Directors (p 1614)

Pastis and coauthors

Sleep and Breathing

Silent Upper Airway Resistance Syndrome:
Prevalence in a Mixed Military Population (p 1654)

Kristo and colleagues

Predictors of Heartburn During Sleep in a Large
Prospective Cohort Study (p 1658)

Fass and coworkers

Editorial Comment by William C. Orr

Review

Hyperventilation in Head Injury (p 1812)

Stocchetti and colleagues

OFFICIAL PUBLICATION OF
THE AMERICAN COLLEGE OF CHEST PHYSICIANS
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A Multidisciplinary Community Hospital Program for Early and Rapid Resuscitation of Shock in Nontrauma Patients*

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Objective: To determine the effect of a community hospital-wide program enabling nurses and prehospital personnel to mobilize institutional resources for the treatment of patients with nontraumatic shock.

Design: Historically controlled single-center study.

Setting: A 180-bed community hospital.

Patients: Patients in shock who were candidates for aggressive therapy.

Interventions: From January 1998 to May 31, 2000, patients in shock received standard therapy (control group). During the month of June 2000, intensive education of all health-care providers (ie, prehospital personnel, nurses, and physicians) took place. From July 1, 2000, through June 30, 2001, patients in shock (protocol group) were managed with a hospital-wide shock program. The program included early recognition of shock and the initiation of therapy by nonphysicians. Frontline personnel mobilized a shock team, which used goal-directed resuscitation protocols, early intensivist involvement, and rapid transfer to the ICU where protocols specific to shock etiology were implemented.

Measurements and main results: Eighty-six and 103 patients, respectively, were enrolled in the control and protocol groups. Baseline characteristics were similar. The protocol group had significant reductions in the median times to interventions, as follows: intensivist arrival, 2:00 h to 50 min ($p < 0.002$); ICU/operating room admission, 2 h 47 min to 1 h 30 min ($p < 0.002$); 2 L fluid infused, 3 h 52 min to 1 h 45 min ($p < 0.0001$); and pulmonary artery catheter placement, 3 h 50 min to 2 h 10 min ($p 0.02$). Good outcomes (ie, discharged to home or to a rehabilitation center) were more likely in the protocol group than in the control group ($p = 0.02$). The hospital mortality rate was 40.7% in the control group and 28.2% in the protocol group ($p = 0.035$).

Conclusion: Similar to current practice in patients who have experienced trauma or cardiac arrest, the empowerment of nonphysician providers to mobilize hospital resources for the care of patients with shock is effective. A community hospital program incorporating the education of providers, the activation of a coordinated team response, and early goal-directed therapy expedited appropriate treatment and was temporally associated with improved outcomes. Randomized multicenter trials are needed to further assess the impact of the shock program on outcomes.

(*CHEST* 2005; 127:1729-1743)

Key words: critical illness; intensive care; medical emergency team; resuscitation; sepsis; shock

Abbreviations: APACHE = acute physiology and chronic health evaluation; AFS = acute physiology score; CI = cardiac index; CVP = central venous pressure; ED = emergency department; F_{iO_2} = fraction of inspired oxygen; HR = heart rate; IVP = IV push; IVPB = IV piggy back; LR = lactated Ringer solution; MAP = mean arterial pressure; NS = normal saline solution; PA = pulmonary artery; PCWP = pulmonary capillary wedge pressure; PRBC = packed RBC; SBP = systolic BP; SvO_2 = mixed venous saturation; SVT = supraventricular tachycardia; UO = urine output; V_r = tidal volume