

# ALS May (or May Not) Improve Survival in Respiratory Distress

*High cost, small benefit*

To determine whether the introduction of advanced life support (ALS) services improves survival in patients with out-of-hospital respiratory distress, researchers conducted a before-and-after controlled study. They enrolled approximately 4000 patients in 15 cities in Ontario during each of two 6-month study periods: In the first period, care was delivered by basic life support crews; in the second period, ALS services were available from "advanced care" paramedics who had 24 weeks of skills training in endotracheal intubation and intravenous administration of medications.

ALS crews responded to 57% of patients in the second period. During this period, 15% of all patients received IV medications, fewer than 3% received bag mask ventilation, and fewer than 2% underwent endotracheal intubation. Administration of medications for symptom relief (most often salbutamol) increased markedly between periods, from 16% to 59%. Mortality before hospital discharge (the primary outcome measure) decreased significantly, from 14.3% to 12.4%, but the absolute difference of 1.9% was less than the 2.0% difference that the investigators had predefined as being clinically important. Mortality in the emergency department did not change, however, and the entire mortality benefit was attributable to a reduction in inhospital death.

**Comment:** Given the low rate of ALS interventions (administration of medications for symptom relief was not considered an ALS intervention), that they had a significant effect on mortality is unlikely. Although the authors did not calculate cost per life year saved, it is likely to be high, considering the costs of 24 weeks of training and continuous skill maintenance. The finding that only 80 patients were intubated during a 6-month period in 15 cities suggests that intubation skills would be difficult to maintain even with training. This study did not show a clear cause-and-effect relation between the introduction of ALS and reduced mortality, and, therefore, EMS directors and public health officials might have reason to initiate further studies to determine exactly what benefits derive from complex and expensive prehospital ALS systems.

— *J. Stephen Bohan, MD, MS, FACP, FACEP*

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Stiell IG et al. Advanced life support for out-of-hospital respiratory distress. *N Engl J Med* 2007 May 24; 356:2156-64.