experienced emergency medicine clinicians and medical/nurse educators. IMC's concern with program sustainability is the impetus behind our philosophy of not only teaching but "teaching to teach." The Bosnian physician and nursing staff members are already acting as course instructors for advanced cardiac resuscitation and trauma outreach programs.

All of us, both program volunteers and IMC long-term staff members, have chosen to become involved. As Dr Waeckerle stated in his editorial, "It is exciting and rewarding, although often frustrating, to be part of the beginning." With more exposure to international emergency medicine, we are optimistic our colleagues will also develop a global perspective and help minimize the word "frustrating" and emphasize the words "exciting" and "rewarding" when speaking of the challenges of implementing the concepts of emergency medicine worldwide.

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Is Variation in Fatal Cardiac Arrest Related to Emergency Medical Services?

To the Editor:

Two recent reports in *Annals* assessed the efficacy of interventions to improve survival after cardiac arrest or heart attack [August 1995;26:138-145 and November 1995;26:635-639]. An important aspect of such research should be the assessment of the communitywide impact of interventions on cardiac mortality both out of hospital and in hospital. Adoption of an improved death certificate by 49 states and the District of Columbia now make it possible to use routinely collected vital statistics data for cardiac mortality research. To describe temporal and geographic variations in an indicator of cardiac arrest out of hospital, I examined data from the National Center for Health Statistics for coronary deaths that occurred out of hospital or in an emergency department from 1980 to 1985 in 40 states with complete data at that time.[1] In 1985, 56% of coronary heart disease deaths occurred out of hospital or in the ED in persons aged 35 to 74 years. The percentage of cardiac arrest deaths was higher in young than in old patients, in males than in females, and in blacks than in whites. Between 1980 and 1985, the age-adjusted death rate declined for deaths from cardiac arrest out of hospital and for coronary deaths in hospital. Notably, the percentage of deaths in EDs increased, suggesting an effect of emergency medical services. The decline in coronary deaths out of hospital and in EDs accounted for 61% of the total decline in coronary death rate in white men, for 55% in white women, and for 70% in nonwhites. However, there was no change in the percentage of deaths out of hospital or in EDs combined. Such trend analysis can be used to help evaluate a community's experience before and after a communitywide EMS intervention such as defibrillation by basic emergency medical technicians.

Such an evaluation strategy can be made more powerful by including data from one or several comparison areas. In addition, data from areas with varying EMS configurations can be compared to discern an effect of the type of service on percentage and rate of sudden cardiac death. In white men aged 55 to 64 years, the percentage of coronary heart disease deaths coded as having occurred out of hospital or in the ED ranged from 49.6% to 70.4% among 42 states for 1984 to 1986.[2] The percentages tended to be higher in mountain states and around Lake Michigan. However, neighboring states sometimes had very different percents. Within regions, percentages were higher in nonmetropolitan than in metropolitan areas. Standard mortality ratios for white males of all ages revealed that several states had relatively high rates of death out of hospital or in the ED. These states included New York, Michigan, and Wisconsin. High rates of coronary death out of hospital or in the ED may be due to high overall coronary death rates, high rates of cardiac arrests out of hospital or in the ED, or both.[2-5] Further epidemiologic studies of temporal and geographic variation of death rates with EMS systems are needed.[2,6] The age, race, and sex distributions of populations at risk must be taken into account because they influence cardiac arrest incidence and survival.[1,4,5] Such studies will aid in the planning, targeting, and evaluation of interventions aimed at preventing cardiac arrest and improving outcome after acute myocardial infarction, such as those that will be developed by the National Heart Attack Alert Program.[7,8] Place of death data from death certificates may be an inexpensive and useful tool in assessing efforts to prevent cardiac arrest and sudden cardiac death.

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Injection of a Whole Black Widow Spider

To the Editor:

A 37-year-old woman with a history of IV heroin use crushed a whole black widow spider, mixed it in 10 mL of distilled water, and injected the mixture intravenously. One hour later she presented to the emergency department complaining of severe, generalized muscle pain and cramping, mainly affecting her abdomen, thighs, and back, and of a headache and anxiety. She stated that she had given herself the injection with the intent

of getting a high, and she denied suicidal ideation.

Blood pressure was 188/108 mm Hg, pulse 188, respirations 28, and temperature 99.5°F. On initial physical examination the patient demonstrated anxiety, with mild, generalized diaphoresis. Her heart sounds were tachycardic, the lungs were clear, and the abdomen was diffusely tender. Initial laboratory findings were normal, except for a WBC count of 15.5×10^9/L and increased levels of liver function enzymes (lactic dehydrogenase, 764 U/L, aspartate aminotransferase, 68 U/L, alkaline phosphatase, 188 U/L, total bilirubin, 1.3 mg/dL). The patient was given IV calcium gluconate, 1 g in a 10% solution, with minimal transient improvement. She subsequently required IV morphine, approximately 10 mg/hour, which relieved her pain.

The patient had a history of asthma and became dyspneic a few hours after presentation. Lung auscultation revealed diffuse wheezing. After three treatments with full-strength albuterol, the patient continued to experience dyspnea and wheezing. Methylprednisolone was given, and the patient was admitted to the ICU.

The next day, in the ICU, the patient became intermittently dyspneic and continued to require frequent nebulized breathing treatments. Her muscle cramping was well controlled with morphine and lorazepam. Calcium was not used in the ICU. Antivenin was not used during the patient's stay because of the potential for anaphylaxis, which we believed might have compounded the patient's already compromised respiratory status.

By day 2, the patient was free of pain. Her lungs were clear, and her respiratory status had improved to baseline. She was transferred to a basic ward and discharged for psychiatric evaluation the next day. She was sent home with instructions to take oral steroids and her usual asthma regimen. Findings on follow-up 1 month later were normal.

Bronchial smooth muscle contraction in our patient may have resulted from a direct toxic effect of the large amount of black widow spider venom injected. In addition to causing generalized skeletal muscle cramping, *Latrodectus* venom is thought to cause smooth muscle contraction.[1] Another possibility is that one of the various proteins contained in a whole spider, injected intravenously, precipitated an allergic reaction in our patient. Allergy to venom itself has been reported in crotalids, but we are aware of no reports of allergy to spider venom.[2] In addition, venom or other proteins may have served as an extrinsic allergen, exacerbating asthma in a known asthmatic.

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CORRECTIONS

An announcement of the 1996 Pediatric Emergency Medicine examination appeared in the February 1996 issue [1996;27:238]. Two inaccuracies appeared in this announcement and are corrected as follows:

A diplomate of the American Board of Emergency Medicine (ABEM) who is also certified by the American Board of Pediatrics (ABP) may submit an application to either ABEM or ABP.

The application, examination fees, and dates for registration stated in the announcement relate to applicants submitting applications to ABP. Information about submitting applications to ABEM can be obtained by contacting the ABEM office at 517-332-4800.

In the December 1995 issue [1995;26:728-732], a list of fellowship programs in medical toxicology was published. The following program was omitted:

University of Cincinnati College of Medicine
Division of Toxicology
231 Bethesda Avenue
Cincinnati, Ohio 45267
513-558-5281
Fax 513-558-5791
Program Director: Edward J Otten, MD
Length: 2 years
Deadline: open

The list of fellowship programs was created by the ACEP Toxicology Section and published in the September 1993 issue. In preparation to reprint the list, the *Annals* staff attempted to update the information by contacting each program. The list should not be considered comprehensive. It was published as a service to our readers.