

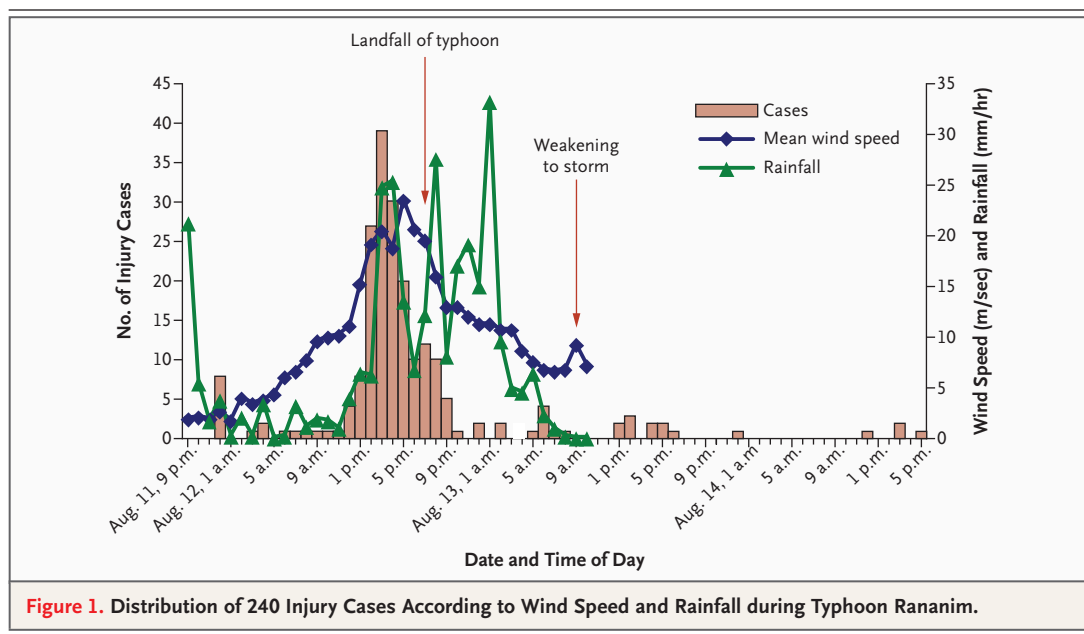
## Injuries after a Typhoon in China

**TO THE EDITOR:** On August 12, 2004, a huge typhoon named Rananim struck the east coast of China. The Chinese Field Epidemiology Training Program investigated to ascertain the rate of and risk factors for typhoon-related injuries in an affected coastal city.

We defined an injury case as any case involving hospitalization of a patient between August 12 and 14, 2004, for any of 10 types of typhoon-related injury,<sup>1</sup> and death as any death from such an injury occurring between August 12 and 18, 2004. We investigated all hospitalized patients and telephoned discharged patients and surrogates for those who had died. We matched 2 neighborhood controls to each of 74 randomly selected

hospitalized patients with injuries according to occupation, sex, village, and age.

We identified 442 injured patients in 10 hospitals; 50 of these patients died (injury rate, 27 per 100,000 persons; death rate, 3 per 100,000). The injury rate was higher among men than among women (42 vs. 28 per 100,000,  $P < 0.001$ ), but the rate among male and female children younger than 5 years of age was the same. The rate increased according to age (from 20 per 100,000 for those <20 years of age to 75 per 100,000 for those >70 years). Of 240 injury cases investigated, 155 (65%) involved injuries sustained during the first 6 hours (peak, 4) of the typhoon, before it made landfall (Fig. 1). The number of



cases increased as the wind speed increased and decreased as the winds died down; injury rates were not associated with the amount of rainfall.

Flying debris and collapsing buildings caused 23% of the injuries, motor vehicle collisions 23%, and falls 21%. The death rate was highest among persons who were injured as a result of a collapsed building — of 34 persons injured, 14 (41%) died. The main causes of death were collapsing buildings (54% of all deaths), collisions (20%), and flying debris (10%).

Forty-two percent of the patients with injuries, as compared with 15% of the controls, were outside their homes before or during the typhoon (odds ratio for injury, 3.9; 95% confidence interval [CI], 1.9 to 7.7); 28% of patients and 18% of controls had not received a typhoon alert before the typhoon hit the coast (odds ratio for injury, 3.3; 95% CI, 1.3 to 8.6).

Because of the obvious danger to persons who are outdoors just before or during a typhoon, the public must be able to hear and respond to typhoon alerts. The government should enhance emergency preparedness and educate people about the risks for and prevention of typhoon-related injuries.

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1. ICECI Coordination and Development Group. International classification of external causes of injuries (ICECI). Version 1.1a. Vol. 1. Tabular lists. Amsterdam: Consumer Safety Institute; Adelaide, Australia: AIHW National Injury Surveillance Unit, 2003.