

**Conclusions:** The attack of foreign nationals represents a proxy war, and the terrorists are looking for softer targets. Therefore, counter-terrorism initiatives must go beyond country-specific models. In developing countries where public health infrastructure is an issue, adopting the “all-hazards” approach to disasters may be the direction required in order to build capacity for dealing with future events. While there is a push for top-end hospitals for “medical tourism”, India has realized that it is eventually the modest public hospital that responds to all disasters, including those caused by natural hazards or conflict. The financial capital of Mumbai has moved from low to moderate risk for terrorist activities over the past 15 years. The geopolitical reasons for this shift must be researched by social scientists.

**Keywords:** counterterrorism; disaster; India; Mumbai; terrorism  
*Prehosp Disast Med 2009;24(2):s165–s166*

### Public Health Safety Measures for Floods in Bihar, India

*D. Jeyaprakash<sup>1,2</sup> Harry Ralte<sup>1</sup> Nobhojit Roy<sup>3</sup>*

1. Center for Studies in Ethics and Rights (CSER), Mumbai, India
2. Trombay Industrial Dispensary, Mumbai, India
3. BARC Hospital, Mumbai, India

**Introduction:** More than 21.3 million people were affected in the 2008 North Indian floods. At least 36,838 villages were flooded and 482,330 houses were destroyed. The number of lives lost to floods was 2,281 and about one million people were left homeless.

**Methods:** A six-month period of disaster relief work for the Bihar floods was evaluated for outbreaks, nutrition, and healthcare facilities. Public health issues including disaster-related illnesses, food distribution, homelessness, mass evacuation, drinking water, loss of land, and livestock were studied. Comparisons were drawn with other floods, such as New Orleans after Hurricane Katrina, especially in regards to vulnerable populations.

**Results:** More than 1,300 relief camps were run by diverse agencies. Air drops and boat rescues were the most common mode of reaching the stranded victims. There was an outbreak of cholera with 130 case fatalities, but the post-disaster illnesses were more rare than predicted. Few hand pumps for drinking water remained uncontaminated by the flooding waters. Halogen tablets and bleaching powder were the most commonly used water-purifying agents. Government agencies repaired 13,685, reconstructed 1,652, and installed 77 new hand pumps with raised platforms in the affected villages with United Nations Children’s Fund (UNICEF) support. Camp community kitchens were preferred over dry rations, as fuel availability was limited. Of the children, 2.6% in the affected area were severely malnourished. Children were immunized with measles vaccine and given Vitamin A supplementation. Remote areas were underserved.

**Conclusions:** Local healthcare workers are instrumental in implementing public health, nutrition, and clean water interventions. Community preparedness was better in areas where

flooding was a seasonal event. Livelihood diversification, rehabilitation of farmland, alternative non-farming occupations, and short-term crops were strategies implemented in the flooded areas. The immediate post-disaster financial aid and media attention can provide a boost for upgrading the basic health infrastructure in resource-poor settings.

**Keywords:** disaster relief; floods; India; outbreaks; public health  
*Prehosp Disast Med 2009;24(2):s166*

### Bihar Floods 2008: Benefits of Health Education and Training

*Vivek Chhabra<sup>1,2,3</sup> Ravikant Singh<sup>2</sup>*

1. National Disaster Management Authority, Govt of India, New Delhi, India
2. Doctors For You, Mumbai, India
3. emsuniversal.com, Gr Noida, India
4. President, Doctors For You, Mumbai, India

**Introduction:** In 2008, floods affected >2.3 million people in the northern part of the state of Bihar in India. Doctors For You, a non-governmental organization (NGO) set up >100 health camps in four months. Maternal and child health was the most affected due to sub-standard health infrastructure, illiteracy, and poor accessibility after the floods. Nearly all deliveries were domiciliary, conducted by untrained local dais (unskilled traditional birth attendants in the village), or remained unattended with no antenatal or postnatal care.

**Methods:** Many health camps were organized in villages. Separate health education sessions were conducted for all pregnant women and adolescent girls in various villages and relief camps. These focused on anemia, nutrition, contraception, early registration of pregnancy, importance of clean and/or hospital delivery, exclusive breast feeding, ORS preparation, and immunization. More than 70 sterile delivery kits (provided by Plan International, an NGO) were distributed to pregnant women. Training session for all local dais were conducted. All of the dais were provided with delivery kits, iron and folic acid tablets, calcium tablets/syrup, and ORS packs.

**Results:** The health status of pregnant women and adolescent girls improved. The number of clean deliveries at home, even during floods increased. The percentage of exclusively breast fed babies increased. Immunization coverage increased significantly, particularly among least developed communities after the floods. There was more awareness among females about the importance of small families, exclusive breast feeding, and immunizations.

**Conclusions:** Health education is a great tool to improve health conditions under any circumstances. Conducting health education sessions targeting pregnant women and adolescent girls in various disaster relief camps increased awareness of various health-related issues on a long-term basis.

Training, health education, and the provision of clean delivery kits to untrained local village dais can assure clean and safe deliveries of children even during disasters.

**Keywords:** camp; child health; education; flood; India; maternal health; pregnancy; training  
*Prehosp Disast Med 2009;24(2):s166*